

NOLOGY DEPT.

# Hilton's MOTOR AGE

JANUARY 1952



This Issue:

## New Notes on A S Ideas



# You get more help from **HASTINGS**



It is only natural that Hastings gives you the most and the best help in the replacement field . . . Hastings aims all its engineering, production and sales policies *exclusively* at the replacement market.

**HASTINGS STEEL-VENT:** The right ring for every replacement condition—re-ring, re-bore, re-sleeve. Chrome faced for heavy duty service.

**HASTINGS MICRO-KNURLING:** Hastings Micro Knurling re-sizes worn and collapsed pistons—brings them back to size. Micro-Knurling re-surfaces both old and new pistons—to provide better lubrication and to eliminate scuffing. Exclusive Diamond Knurl pattern.

**HASTINGS SERVICE INFORMATION:** Most mechanics rate Hastings handbooks, engineering bulletins and installation instructions the most complete, practical and authoritative in the field.

**HASTINGS SERVICE TOOLS:** Hastings engineers have developed many specialized service tools to help you do better, faster, more profitable work. Available through your Hastings jobber at low cost.

◀ **HASTINGS ADVERTISING:** The famous Tough-but-oh-so-Gentle guy works for you, month-in, month-out in leading national magazines and farm journals.

# HASTINGS

STEEL-VENT PISTON RINGS

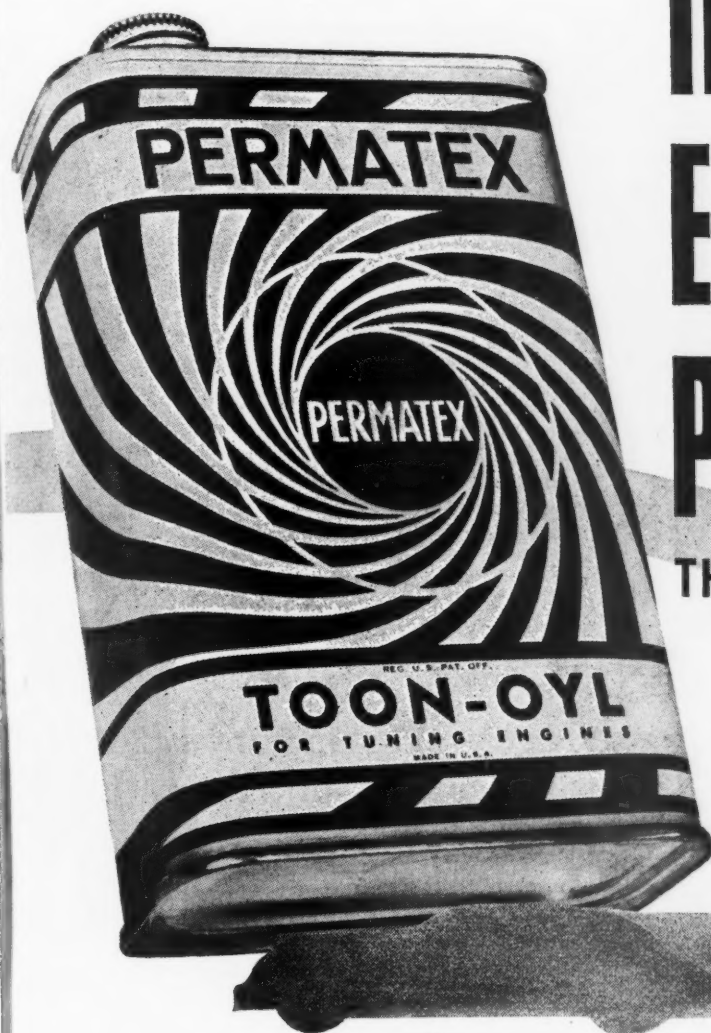


# PERMATEX TOON-OYL

for....

## IMPROVED ENGINE PERFORMANCE

THREE PRODUCTS IN ONE



### 1 CLEANS GUMMED WORKING PARTS

Permatex Toon-Oyl quickly dissolves carbon-gum deposits, frees sticky valves and rings and leaves the working parts of an engine clean... free to deliver full power and peak performance.

### 2 ELIMINATES EXCESSIVE WEAR

As proven by latest independent research findings, acid and corrosion cause up to 90% of all engine wear. Permatex Toon-Oyl is specially formulated to retard this chemical action and afford maximum protection against its harmful effects.

### 3 INCREASES POWER

Permatex Toon-Oyl's high quality is represented by its film strength of 30,000 lbs. This added protection eliminates wall drag, increases gas mileage and adds power by forming a protective coating on all working parts.

*For Full Power... add one quart of Permatex Toon-Oyl to regular crankcase oil. You'll feel the improvement... fast!*

PERMATEX COMPANY, INC., BROOKLYN 35, N. Y.



A very important  
message to new  
car dealers and  
service station men

To avoid customer  
complaints of  
**STICKY VALVES,**  
**GUMMY DEPOSITS,** etc.  
... caused by closer  
engine clearances and  
hydraulic valve lifters  
in the new cars —

**CHANGE** to and  
**STAY** with Custom-  
Made **HAVOLINE**

And tell your  
customers why!  
Give them these  
**④ FACTS...**



*Even meets Army and Navy  
standards for heavy duty  
oils used in tanks, trucks  
and submarines.*

**FACT ①** Heavy duty motor oil is now  
being used at car manufacturers' plants  
...on their proving grounds...in their  
factory driveaways.

**FACT ②** Many new car manuals now  
specify heavy duty motor oil.

**FACT ③** Custom-Made HAVOLINE  
has proved itself a preventive of sticky  
valves, gummy deposits, etc.

**FACT ④** Custom-Made HAVOLINE is  
a heavy duty (high detergent) motor  
oil ... even exceeds heavy duty re-  
quirements.

**The Texas Company**





# Chilton's MOTOR AGE

WITH WHICH IS COMBINED AUTOMOBILE TRADE JOURNAL

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**For THE AUTOMOTIVE SERVICE INDUSTRY**

LXXI, No. 2

January, 1952

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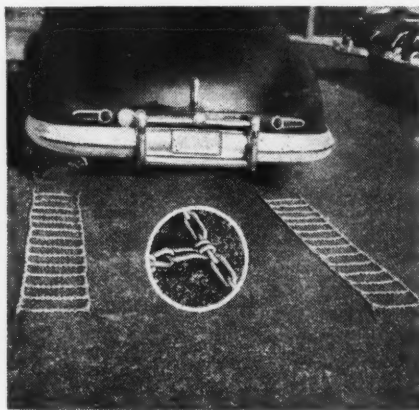
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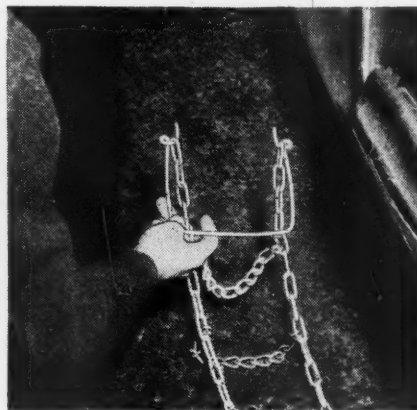


# There's an EASIER way to put on Tire Chains

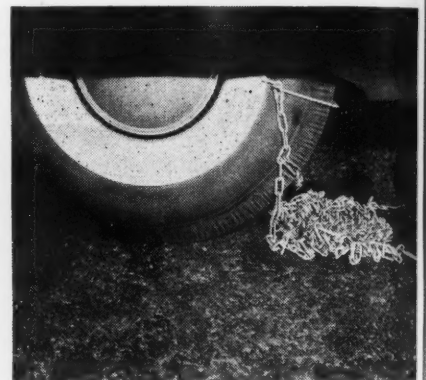
**YES**—an easier way for service men as well as car owners. This way is to use **Weed Zip-On Appliers**. You don't have to jack up the car or raise it on a lift. Just read the directions printed below and try it for yourself. • Even if you still prefer to lift the car, these **WEED APPLIERS** help car owners who have to put on their own chains. • Order **Weed Zip-On Appliers** now. Show them whenever you sell a pair of **WEED CHAINS**. Last winter many people wrote asking where they could buy them.



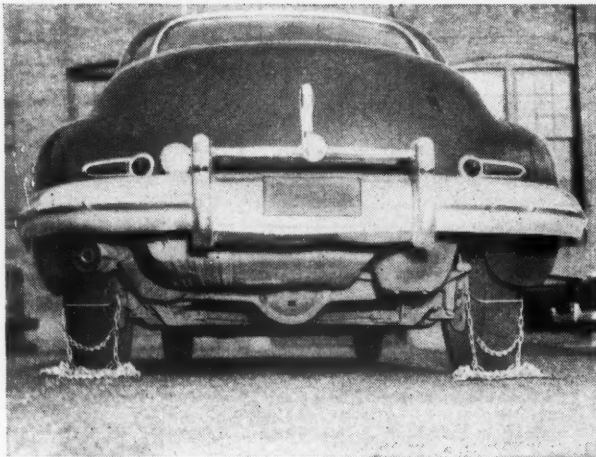
**Spread both chains on ground, remove tangles.**



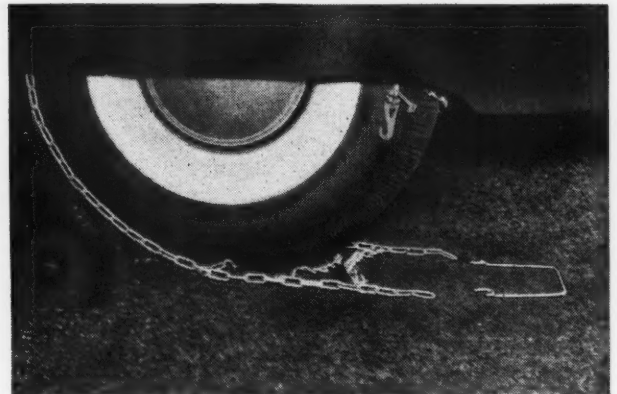
**Hang chains on points of Zip-On Appliers.**



**Press both Appliers on tires near fenders, gather cross chains in back of tires.**



**Be sure Appliers are at same height.**



**Drive car forward until side chain fasteners are near fenders. Remove Appliers, hook up in usual manner.**

**ACCO**



York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Bridgeport, Conn.

**AMERICAN CHAIN DIVISION  
AMERICAN CHAIN & CABLE**

*In Business for Your Safety*

**WEED  
TIRE CHAINS**





# REDUCE PISTON *Breakage* WITH THE MOOG DYNAMIZER!

Piston Expansion alone  
doesn't complete the job.  
Worn pistons must be  
"stress-relieved" before they  
are put back in motor.



Any motor that has run long enough to need a re-ring job, will have pistons that not only need expanding but "stress-relieving" as well. The stress, set up in the metal thru long operation, tends to make pistons brittle. The Moog controlled heat method not only expands *all* types of pistons but relieves these stresses, and thus provides longer life.

To complete the job of piston reconditioning, have them Dynamized. See your nearest Moog Distributor.



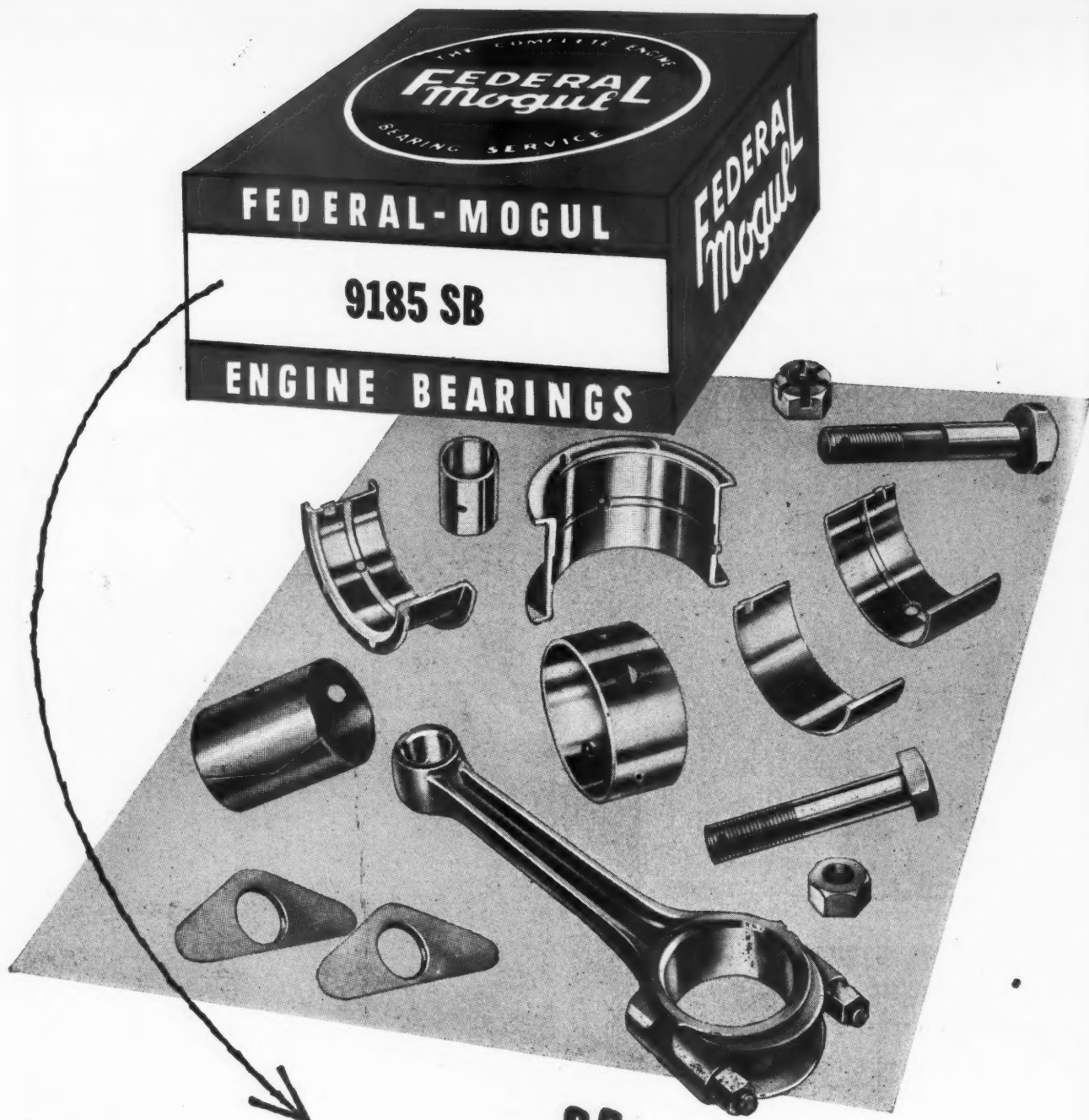
To bring back FULL POWER performance, install Moog X-Plus Piston Rings — America's No. 1 oil control set-up.



MOOG INDUSTRIES INC.

6650 Easton Ave., St. Louis 14, Mo.





the answer to *all*  
of your engine bearing *needs!*

For complete engine bearing service, the Federal-Mogul package is your guide to quality, accuracy and dependability!

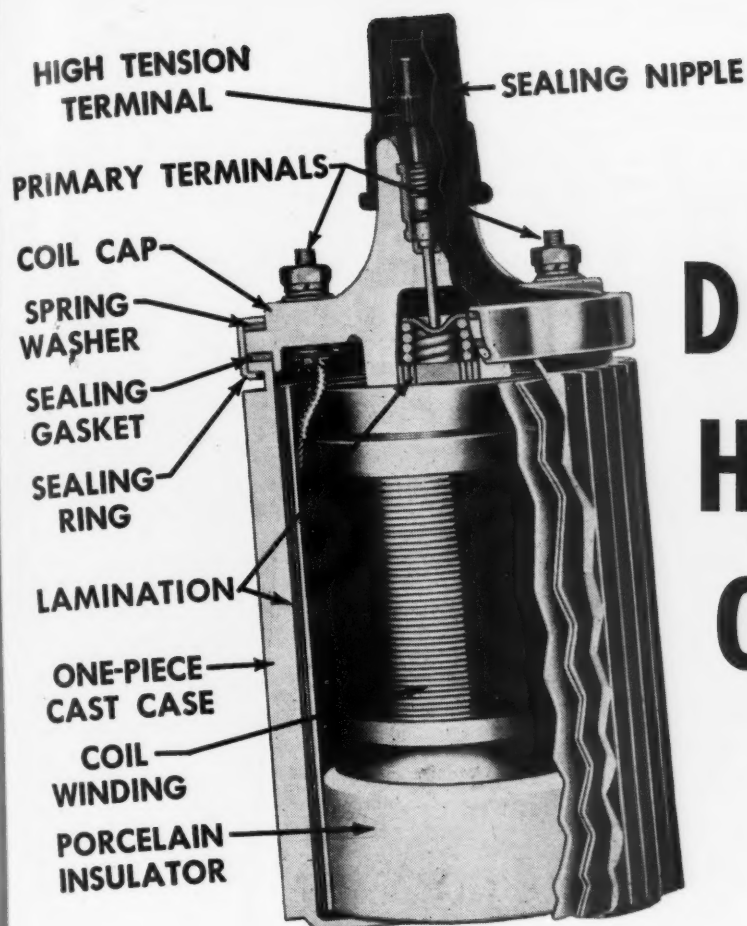


**FEDERAL-MOGUL SERVICE**  
(Division of Federal-Mogul Corporation)  
DETROIT 13, MICHIGAN

Engine Bearings (Main, Connecting Rod and Camshaft) • Bushings • Connecting Rod Service—Reconditioned Connecting Rods, Rebabbitted Connecting Rods • Connecting Rod Bolts and Nuts • V-Seam Piston Pin Bushings • Shims and Shim Stock.







# DELCO-REMY HEAVY-DUTY OIL-FILLED COILS

Best for  
Heavy-Duty  
Service

Delco-Remy heavy-duty oil-filled ignition coils have *everything* it takes for the best performance on heavy-duty applications. Look at these important proved-in-use features—

- Heavy-duty Seal—hermetically sealed against the entrance of air and moisture by crimped steel ring and spring-loaded trapped gaskets.
- Heavy-duty Insulation—oil-filled for permanent insulation and cooler operation under all conditions of service.
- Heavy-duty Construction—sturdy, leakproof die-cast case . . . extra-quality shockproof, arc-resistant molded cap . . . rugged steel primary terminals . . . positively soldered leads and anchored windings . . . special porcelain insulator for internal assembly support.
- Heavy-duty Designs—models available with special waterproof terminal assemblies . . . special windings for city service . . . special high tension outlets.

Delco-Remy 6- and 12-volt oil-filled heavy-duty service coils—for every application old or new—are quickly available through United Motors Service distributors everywhere.

**Delco-Remy**  
DIVISION, GENERAL MOTORS CORPORATION  
ANDERSON, INDIANA

DELCO-REMY—A UNITED MOTORS LINE  
Available Everywhere Through  
UNITED MOTORS DISTRIBUTORS



WHEREVER WHEELS TURN OR PROPELLERS SPIN

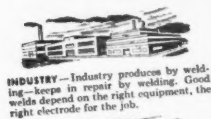


**WATCH FOR THIS  
MARQUETTE  
FULL PAGE!\***

**IN THE  
JAN. 26th ISSUE  
SATURDAY EVENING  
POST**



**No job too big ...or too little!**



**INDUSTRY**—Industry produces by welding—keeps in repair by welding. Good welds depend on the right equipment, the right electrode for the job.



**TRANSPORTATION**—Marquette equipment and welding electrodes help keep America's transportation moving.



**AGRICULTURE**—Farmers depend on welding to keep machines running—to put them back to work when breakdowns happen.



**FREE.** If your business is welding, write for helpful 44 page, "Guide to Better Welding."

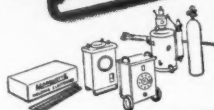


Year by year, welding has come to play a greater and greater part in both the output and the maintenance of the huge and busy plant that is America. The skills of the welder are being applied every minute of the day to every kind of metal joining problem—from the smallest repair job—to the biggest metal fabricating job.

Behind the magic of fusing metals is the know-how of a trained specialist combined with the most modern precision-engineered equipment. Marquette welding equipment is known everywhere for its design and engineering, and for its outstanding performance under the most exacting conditions. To be Marquette equipped is to be well-equipped!

**MARQUETTE**  
REGISTERED U.S. PAT. OFFICE

**Welding & Automotive Service Equipment**



WELDING ELECTRODES AND RODS • ARC AND OXY-ACETYLENE WELDING EQUIPMENT • BATTERY CHARGERS • TOW CRANES

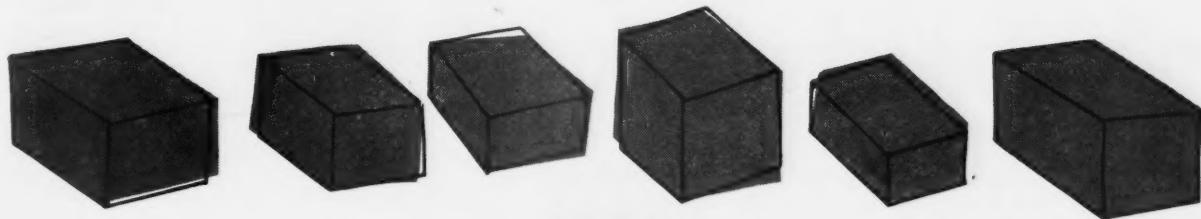
Marquette Manufacturing Company • 307 East Hennepin Avenue • Minneapolis 14, Minnesota

\* This is the first in a continuing series of **MARQUETTE** advertisements in the **POST** featuring **MARQUETTE** Welding, Battery Charging, and Automotive Service Equipment

**MARQUETTE MANUFACTURING COMPANY • 307 EAST HENNEPIN • MINNEAPOLIS 14, MINNESOTA**



Now with every 6-case order for WHIZ products



you get an extra case  free of extra charge!

You can make a  dollar profit for every

dollar invested!

HERE ARE THE  
DETAILS OF THE NEW  
**WHIZ DEAL!**

1. You buy only six cases—of whatever WHIZ products you prefer at regular dealer prices. You choose any product, any sizes up to gallons inclusive. No limit to amount. Half deals also acceptable.

2. You receive free of extra charge your choice of a full 24-can case of LUSTERIZE Cleaner or Speedry Car Wash. Retail value of the free merchandise is \$18.00—equivalent to a discount of 10% or more on your 6-case purchase.

You can buy your complete chemical requirements almost at *jobber's cost*!

HERE'S AN  
**EXAMPLE...**

	Your Cost	Selling Price
<b>YOU BUY:</b> 1 cs. Pts. Motor Rythm..	\$12.24	\$20.40
1 cs. Pts. Zorbit.....	10.80	18.00
1 cs. Kleen Flush.....	9.00	15.00
1 cs. Metal Seal.....	12.00	24.00
1 cs. Pts. Rustop.....	14.40	24.00
1 cs. Instant Sealer....	9.36	15.60

<b>YOU GET:</b> 1 cs. LUSTERIZE Cleaner.	n/c	18.00
<b>FREE of extra charge</b>	<b>\$67.80</b>	<b>\$135.00</b>

You Make As Much As \$67.20 Profit On A \$67.80 Investment!

CALL YOUR  
WHIZ JOBBER  
TODAY  
or write direct!



**R. M. HOLLINGSHEAD CORPORATION**

LEADER IN MAINTENANCE CHEMICALS

Camden 2, New Jersey

Canadian Offices: Toronto

Warehouses: Chicago, Dallas, San Francisco





# Inferior brake lining and good brake work don't mix...

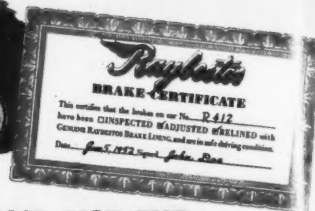
To make steady and increasing profits from your brake service, you have to be sure that your brake work won't kick back. And you can be when you use Raybestos PG Proving Ground Tested Brake Lining Sets. They give the safe, sure stops and have the long-lasting life that complement your good shop work, satisfy your customers, and increase your profits.



**INSIST ON THE RAYBESTOS BRAND ON EVERY  
PIECE OF BRAKE LINING. IT'S THERE FOR  
YOUR PROTECTION.**

PG for riveting

Ray-BOND for bonding



## PULL WHEELS AND USE THE RAYBESTOS BRAKE CERTIFICATE

These two things, plus the quality of Raybestos Brake Lining, will give you the keys to brake service volume. And month after month, powerful pre-selling Raybestos ads like the one below will support you by urging city and rural car owners to have their brakes certified safe.



**YOUR CUSTOMERS AND PROSPECTS  
WILL READ THIS RAYBESTOS AD**  
Hard-hitting advertisements like this are appearing regularly in the **Saturday Evening POST** and in **Farm Journal**. Thousands of car owners right in your own neighborhood will become brake lining conscious... will want to buy Raybestos.

50 YEARS OF SERVICE... 50 YEARS OF PROGRESS... 1902-1952



# Raybestos

## PG SETS

AMERICA'S BIGGEST SELLING BRAKE LINING



**RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., Bridgeport, Conn.**

RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Radiator Hose • Fan Belts • Mechanical Rubber Products • Rubber Covered Equipment • Packings • Asbestos Textiles • Sintered Metal Products • Abrasive and Diamond Wheels • Bowling Balls



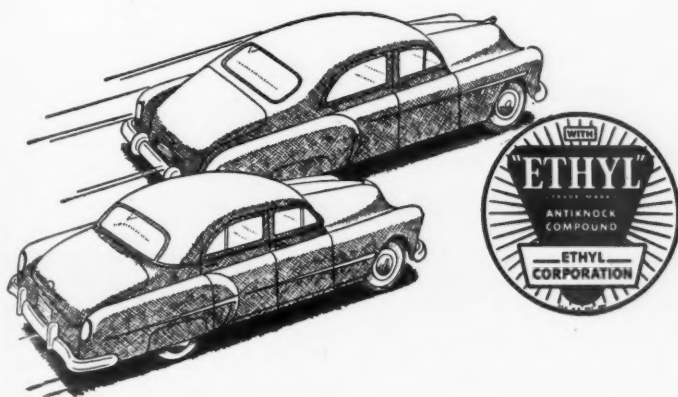


There's a big difference between a

# possum and a blossom

—and there is a powerful difference, too,  
between performance and “ETHYL” performance!

TRADE-MARK



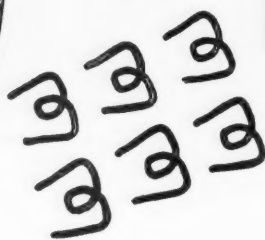
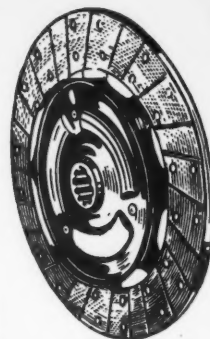
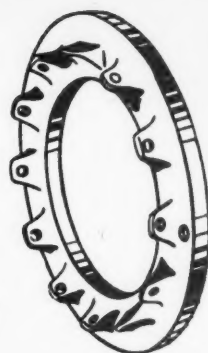
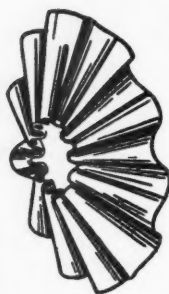
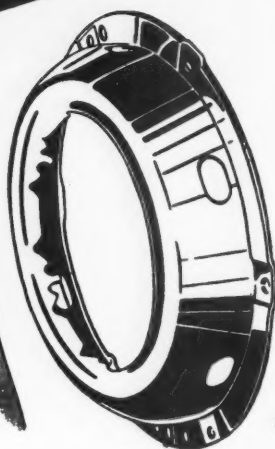
Yes, there's a powerful difference between the performance of an engine using just gasoline and one using “Ethyl” gasoline. When you set the timing to take full advantage of “Ethyl” gasoline's higher antiknock quality, your customer gets “Ethyl” performance—more power, quicker starting, more mileage. And you get happier, more satisfied customers.

ETHYL CORPORATION, New York 17, New York

Other products sold under the “Ethyl” trade-mark: salt cake...ethylene dichloride...sodium (metallic)...chlorine (liquid)...oil soluble dye...benzene hexachloride (technical)



# use **BUICK** clutches



## on **BUICK** repairs!

**PRICED FOR PROFIT**—this top-quality clutch can be one of your best profit-makers.

**HIGHEST QUALITY**—not rebuilt—not repaired—the same as the original factory-installed clutch.

**EASIEST TO WORK WITH**—individually matched and balanced for vibration-free action, full release and smooth, positive operation.

**FULLY GUARANTEED**—you're protected against customer complaints.

**BUY BUICK PARTS FROM YOUR BUICK DEALER ALWAYS**—be sure of Factory-Engineered Parts—full discount—friendly, helpful information when you need it.



## Better work with Buick parts

see your Buick dealer

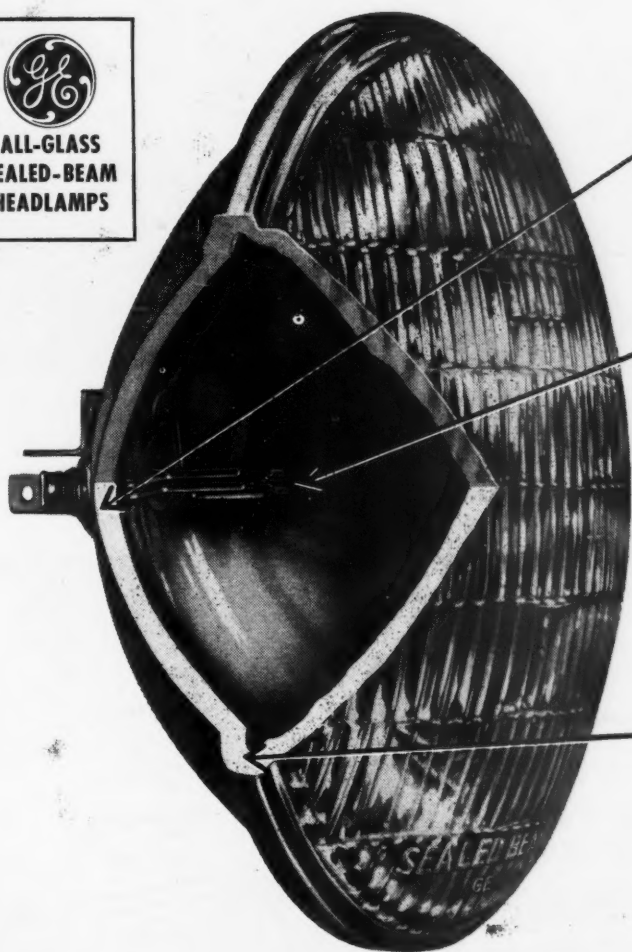


# All-Glass headlamps specified for new army tanks!

**G-E All-Glass construction withstands toughest treatment... makes possible high wattage in small-target lamps**

The designers of new medium tanks for the army found that one type of headlamp combined all the important features they were looking for. **THAT ONE IS THE ALL-GLASS HEADLAMP!**

And the features that make All-Glass headlamps suitable for army tanks are the same features that make General Electric All-Glass headlamps an outstanding value for passenger cars:



**They're tough!** The thick, hard glass of the General Electric headlamp provides a firm base for lead-in wires. G-E filaments are anchored in a vise-like grip... can't shake loose.

**They're bright!** Because G-E headlamps are all one big bulb, there's plenty of room inside for heavy, rugged filaments. For the army, this means tank headlamps can be made compact without sacrificing light output. The lamps on the new tanks are only 4½ inches in diameter, yet they contain a 100-watt filament for upper beam and 50-watt filament for lower beam.

**They DO NOT GROW DIM!**

Since both G-E lens and reflector are made of hard glass fused together, dirt and moisture can't get inside to tarnish reflecting surfaces. Tests prove that G-E All-Glass sealed beam headlamps give an average of 99% as much light just before burning out as they do when new.

**Follow the example of tank designers:  
Recommend and install General Electric All-Glass headlamps**

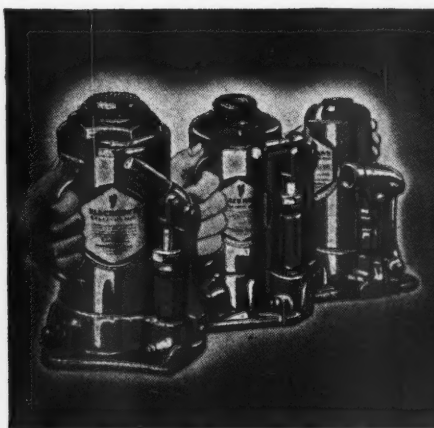
**GENERAL**  **ELECTRIC**



# 7 WAYS TO BOOST YOUR LEADERSHIP



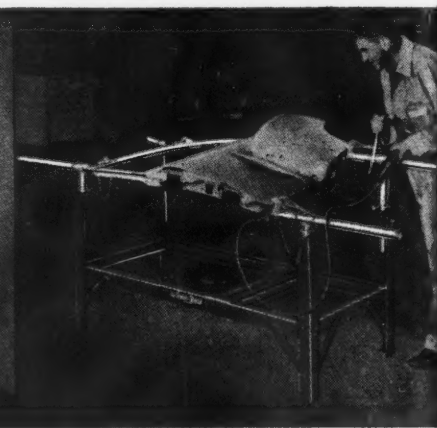
**1** Equip each mechanic with his own Blackhawk Service Jack — Stop costly waiting! And pick a range of sizes to handle each class of service. Blackhawks dress up your shop... are years ahead!



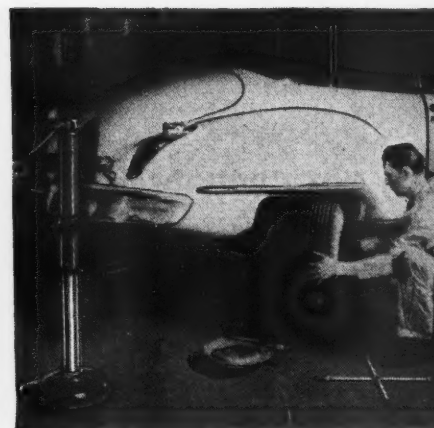
**2** Make extra money with Blackhawk Hand Jacks — stock this high-profit *quality* line for resale to both truck and passenger car owners. Use 'em yourself, too, to zip up shop jobs and handle truck trade.



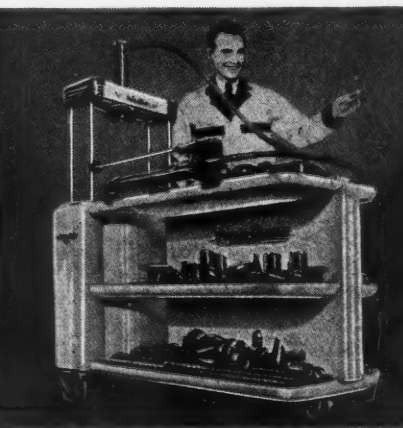
**3** Look, feel and work like a professional! Beat flat rates and win preferred customers. Get a "Treasure Chest" of sparkling Blackhawk Socket Wrenches. They're the absolute *finest*, yet cost nothing extra!



**4** Slash time 50% on off-the-car rough-out work! Take the wrestling out of reconditioning. Get a "Reck-Rack" to rigidly hold any body section for hammering, sanding and other jobs.



**5** Speed up your wheel service on modern cars. Use hydraulic "LIFT-POST" — Blackhawk's unmatched answer for getting cars *up* faster. *Deep-skirted fenders go up, too*, exposing the wheel for fast action.



**6** Get equipped for STEP No. 1 in profitable reconditioning — and that calls for "Porto-Power" — to reshape the metal. Only Blackhawk makes "Porto-Power." Nothing else even closely rivals it.



**7** Bank on the jobber who represents Blackhawk — he generally is tops in his territory. See his displays of Blackhawk equipment that boost your leadership. *Blackhawk Mfg. Co., Milwaukee 1, Wisconsin.*

# BLACKHAWK



# Avoid comebacks on brake jobs! Use Grey-Rock Balanced Braksets



Every segment factory-branded for your customer's protection. For riveting or for bonding.

*Only* **Grey-Rock** *makes*  
**BALANCED BRAKSET LININGS**



**GREY-ROCK DIVISION** of Raybestos-Manhattan, Inc., MANHEIM, PA.

RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Fan Belts • Radiator Hose • Packings • Mechanical Rubber Products • Rubber Covered Equipment • Asbestos Textiles • Sintered Metal Products • Abrasive and Diamond Wheels • Bowling Balls

## Grey-Rock advantages Satisfied Customers



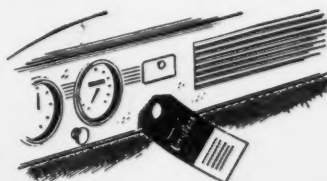
Keep 'em happy with their brake jobs by using Grey-Rock Balanced Braksets! For each make and model of vehicle, Grey-Rock gives you a combination of friction materials to assure smooth, quiet, safe stops with fewer adjustments. You get even wear on all shoes, too, with longer lining life.

## Reputation Booster



Your reputation for good brake work climbs higher every time you install Grey-Rock Linings . . . the linings regularly advertised for years. Car owners know the Grey-Rock name, and have greater confidence in shops that use Grey-Rock.

## Proof of a Better Brake Job



This tag is packed in every Grey-Rock set, ready for you to snap on a dash button of your customer's car. It tells how your workmanship joins with Grey-Rock Balanced Braksets to deliver a better brake job. It's good advertising for your shop!

Consistently advertised in  
**POST** and **Country Gentleman**





# AGAIN

**AMERICA'S FAVORITE SPARK PLUG**



# ***IN 1952...***



**CHAMPION**

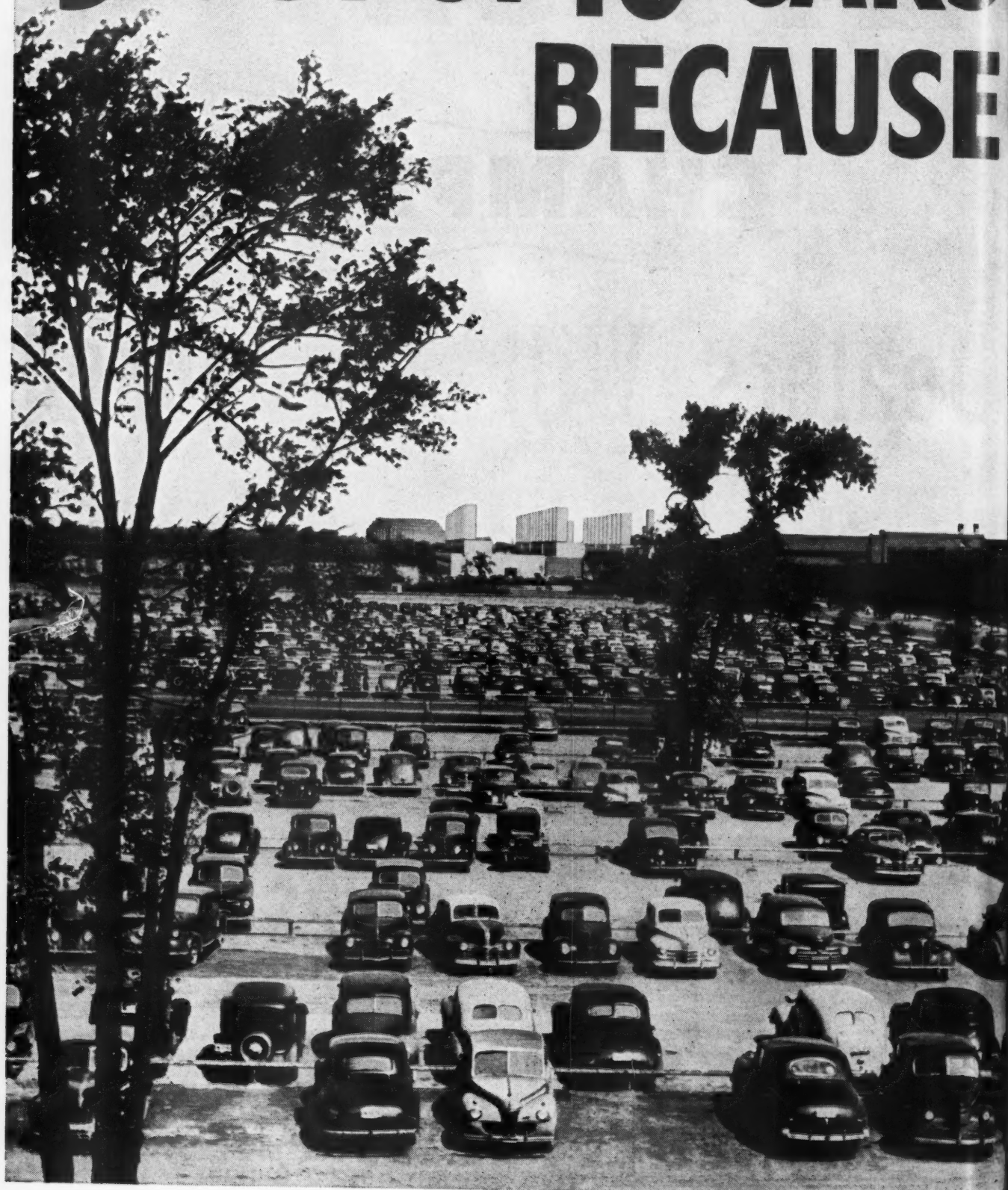
**Dealers Will Be Backed  
by the Largest Advertising  
Program Devoted Exclusively  
to Spark Plugs!**

**BE A CHAMPION DEALER *IT PAYS!***

CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO



# 9 OUT OF 10 CARS BECAUSE





# PERFORM BETTER OF...



## Overwhelming Equipment Leadership Means a Tremendous Replacement Market



**AC Spark Plugs . . .** with patented CORALOX Insulator. Factory-installed on more new cars than any other make. Complete market coverage, with types and sizes for all engines.

**AC Aluvac Oil Filter Elements** The Industry's Fastest-Growing Element Line. AC Oil Filters with Aluvac Elements are original or factory-approved equipment on Buick, Chevrolet, Cadillac and Oldsmobile.

**AC Fuel Pumps . . .** America's First and Finest More than 100,000,000 have been built—more than 40,000,000 are in daily use. The original and still the best.

**AC Speedometer Cable-Casing Assemblies**  
Also bulk cable and casing.

**AC Air Cleaners and Elements**  
Eighty percent of all car manufacturers use AC Air Cleaners for original factory equipment.

**AC Flexible Gasoline and Oil Lines**  
Also Make-up Kits with hose and fittings.

**AC Gasoline Strainers**  
In Counter Merchandiser for display and easy sales.

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION





NO GIMMICKS  
NO COUPONS  
NO POINTS  
TO SAVE



A REAL  
PROFIT  
MAKER

Never before a deal like this . . .

# NEW WIRES FOR OLD!

## EIGHT FAST-SELLING IGNITION SETS

One	No. 1003
Three	No. 1007
One	No. 1009
One	No. 1012
One	No. 1016
One	No. 1018

## PROFIT MARK-UP OF OVER 84%

Your cost	\$12.37
Your selling price	\$22.80
Your profit	\$10.43

## SALES-MAKING ADVERTISING

- An eye-catching, sales-making window poster!
- A reprint of MOTOR AGE article "Neglected Wires Cause Fires!"
- 12 dramatic postcards for mailing to motorists!

## A Bonus of NEW WIRES for OLD

When you sell a Crescent Wiry Joe Ignition Set, put the old wires—the ones you replace—in the empty carton. When you have eight old sets, exchange them with your jobber for TWO BRAND NEW CRESCENT WIRY JOE SETS OF YOUR CHOICE—absolutely without charge!

**ACT NOW!** The sooner you get in on this BIG deal, the more profit you'll make. See your Crescent Wiry Joe jobber today!



THE CRESCENT COMPANY, INC., Pawtucket, R. I.

*Check the wire and cable on every car!*







# Announcing NEW SEAT COVER PRICE SENSATION



## THE Rankin JET

**TALK ABOUT PRICES!  
TALK ABOUT QUALITY!**

*Again...*  
**THE RANKIN PROFIT PLAN  
GIVES YOU MORE TO SELL**

# FREE

*Just Off the Press*

Colorful new Rankin catalog featuring the Big 7... the 1952 line of America's Finest Seat Covers for every car, every car owner. WRITE FOR YOUR FREE COPY NOW.



by  
**Rankin**

**MAIL  
TODAY**

**RANKIN MANUFACTURING CO.**

CEDAR FALLS, IOWA

WICHITA FALLS, TEXAS

BERKELEY, CALIFORNIA

Watch your seat cover sales Z-O-O-M up fast with this amazing new Rankin Jet. Never before a genuine Rankin Seat Cover at such a low price. Really whips your local competition. Opens a big new market. Gives you terrific promotional opportunities to boost your seat cover sales and profits to a new high.

### LOOK AT THESE TOP-VALUE RANKIN FEATURES

Lumite woven Saran plastic panels  
Luxurious Jason Sealtuft stitchless quilted plastic trim  
Harmonizing rayon satin backing, facing  
All vinyl welts—no clay filler  
All materials U.S. Testing Laboratory tested  
Quality workmanship  
Superior Rankin tailoring

... All at an unbelievably low price.  
Give your seat cover sales a fast start for '52. Feature the new Rankin Jet. Write today, now, for full information.

**RANKIN MANUFACTURING CO.** Dept. MA  
Cedar Falls, Iowa

Please rush me full information on the sensational new Rankin Jet.

Name.....

Address.....

City.....State.....





"Like the Auto-Lite salesman says . . . Ignition Engineered Auto-Lite Spark Plugs are a complete line for maximum profits. Since taking on the line I've found that's true. Believe me, it's a great line and a great deal."

RAY W. TOSCH  
8315 Preston Rd., Dallas, Texas

*Dealers agree...*

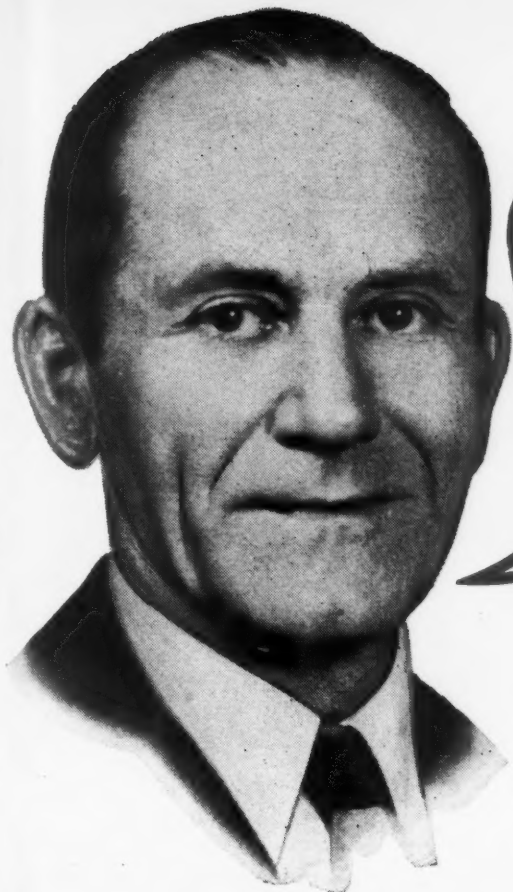
**"AUTO-LITE SPARK PLUGS"**

"Everywhere I go I see Auto-Lite Spark Plug advertising—in newspapers, magazines, on the radio and even television. That's the kind of backing a dealer likes to get—the kind that really helps him sell."

ROBERT W. MILLER  
10524 Burbank Blvd., No. Hollywood, Calif.







"There's real advanced engineering behind the Auto-Lite Spark Plug line. Take the Resistor plug, for instance. It's been proven right and it's still unmatched in the industry."

**EDDIE MEYER**  
5760 Chippewa, St. Louis, Mo.

*Offer the best deal!*

"Auto-Lite Spark Plugs are tops in quality. My customers like 'em, I like 'em and automotive engineers must like 'em, too. They put 'em in as original equipment. That makes Auto-Lite easy to sell."

**FRANK S. MILLIGAN**  
7402 Third, Detroit, Michigan







## If it's petroleum-powered . . . there's a GLOBE to make it go!

**M**ASS. distribution or original equipment . . . 40 basic Globe sizes and types offer you wide choice for every application. In addition, special models are made for special needs. Low freight costs and quick service are yours, too, from 13 factories strategically placed near your markets. Product uniformity is another Globe advantage. All 13 factories employ identical standards, processes and equipment. You get Globe reputation, 26 years of engineering achievement have made these batteries known 'round the world for "spinning power", split-second starting and longer life. In fact, whatever your requirements, you'll meet them better with Globe-Union built batteries.

**GLOBE-UNION INC., Milwaukee 1, Wisconsin**

*Battery Production Plants At:*

Atlanta, Ga. • Boston, Mass. • Cincinnati, Ohio • Dallas, Texas • Emporia, Kans. • Hastings-on-Hudson, N. Y.  
Los Angeles, Calif. • Memphis, Tenn. • Mineral Ridge, Ohio • Oregon City, Ore. • Philadelphia, Pa. • Reidsville, N. C.





# SERVICE TIPS

## MOPAR

JANUARY IS MOPAR SURE-START SERVICE MONTH

# 1.

## IT'S A GOOD IDEA TO CLEAN UP ON BATTERY TERMINALS

Before putting the blame for balky starts on the spark plugs or distributor, take a peek at the battery terminals. If terminals or connectors are corroded or loose, full battery power will not be delivered. So clean 'em and tighten 'em thoroughly.



# 2.

## FOR SURE STARTS, USE MOPAR IGNITION SYSTEM PARTS

**Genuine Chrysler Corporation Parts for Plymouth, Dodge, De Soto, Chrysler cars, and Dodge "Job-Rated" trucks**

Fast starts are a cinch when you use MoPar distributors, points, batteries, spark plugs, and other ignition system parts.

They're factory-engineered . . . factory-inspected . . . and supplied by Chrysler Motors Parts Corporation. You can rely on them for top quality, superior performance, and lasting satisfaction!

Remember, too, that you can get MoPar parts or accessories—in a jiffy! See your nearest Plymouth, Dodge, De Soto, or Chrysler dealer.



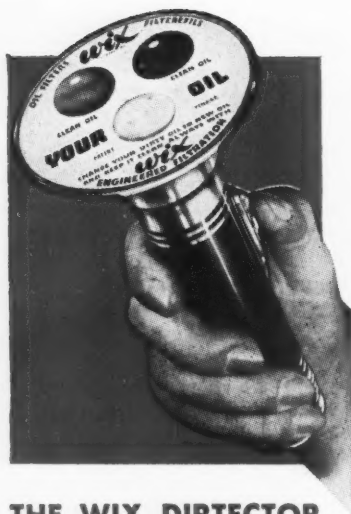
Display this sign to let people know you recommend and install MoPar parts. For details, write Advertising Dept., Chrysler Motors Parts Corporation, Detroit, Michigan.

CHRYSLER MOTORS PARTS CORPORATION, DETROIT, MICHIGAN





# FOR A PROFITABLE 1952 CLEAN UP WITH WIX!



## THE WIX DIRTECTOR

With the increasing use of HD oils which darken so quickly in use, old methods of testing oil by color are out. The patented WIX Dirtector clearly shows the condition of motor oil . . . reveals the contamination in dirty oil . . . shows clearly when oil and cartridge require changing. Ask your jobber about the WIX Dirtector today.

"You know what you're selling when you sell WIX! Yes . . . and so does your customer! When he buys good oil and WIX Engineered Filtration he knows that combination will pay off in better engine performance and longer engine life. And, he knows *when* he needs new oil or a new cartridge because you can *show* him the condition of the oil with the patented WIX DIRTECTOR."

CLEAN OIL and CLEAN PROFITS go hand in hand with WIX ENGINEERED SELLING . . . and for three good reasons! First . . . THE PRODUCT . . . with its amazing filtrant WIXITE that outperforms and does *not* remove

detergent additives from the oil. Second . . . THE LINE . . . a filter cartridge for every filter, each engineered to provide a plus in savings, a plus in performance and a plus in mileage. Third . . . SALES TOOLS . . . the patented WIX Dirtector that tells the story without conversation, the WIX Cabinet Merchandiser that saves steps and speeds sales AND sales helps that build sales for YOU! It's the same story no matter what vehicle you service . . . car, bus, truck or tractor; or what type of oil is used . . . straight run, premium or heavy duty . . . and that story is—CLEAN IT UP WITH WIX!

# wix

TRADE MARK REG.

OIL FILTERS • CARTRIDGES  
WIX ACCESSORIES CORP. • GASTONIA, N. C.



CANADIAN FACTORY: WIX ACCESSORIES CORP. LTD., 25 CURITY AVE., TORONTO 13, ONT.



THESE PRODUCTS HAVE

# Acceptance

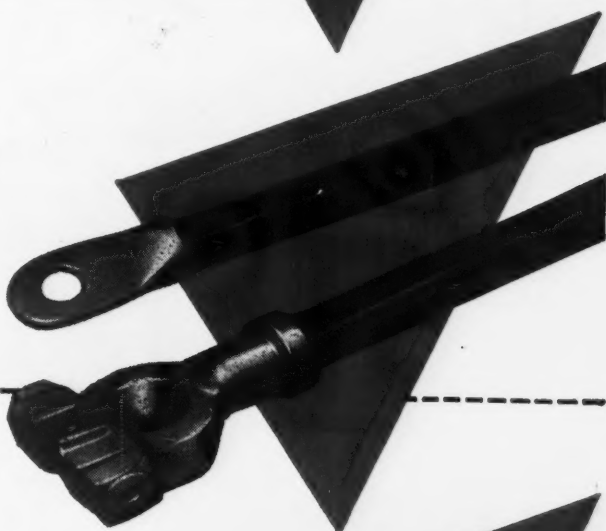
## PACKARD IGNITION CABLE

Long considered the "standard of the automotive industry," Packard high-tension cable is used as original equipment on more cars, trucks, buses and tractors than cable of any other make. Packard FOUR-FORTY and Packard LAC-KARD ignition cable are designed to deliver balanced performance in every make and model car, truck, bus and tractor in operation today.



## PACKARD BATTERY CABLE

Packard battery cables are used as original equipment on more cars, trucks, buses and tractors than cables of any other make. Packard battery cables are full size, full weight . . . are available with LEADALLOY terminals or leaded brass terminals. Both types are packaged in individual cartons—both deliver top performance—both have acceptance, everywhere.



## PACKARD LOW-TENSION CABLE

As with Packard's other products, Packard low-tension cable is used as original equipment on more cars, trucks, buses and tractors than cable of any other make. Packard's "249 Compound" insulation, by every laboratory test and by the test of long, hard usage, has exceptional resistance to heat, oil, chemicals and abrasion.



**Packard**  
REG. U.S. PAT. OFF.  
TRADE MARK

Packard Electric Division, General Motors Corporation  
Warren, Ohio

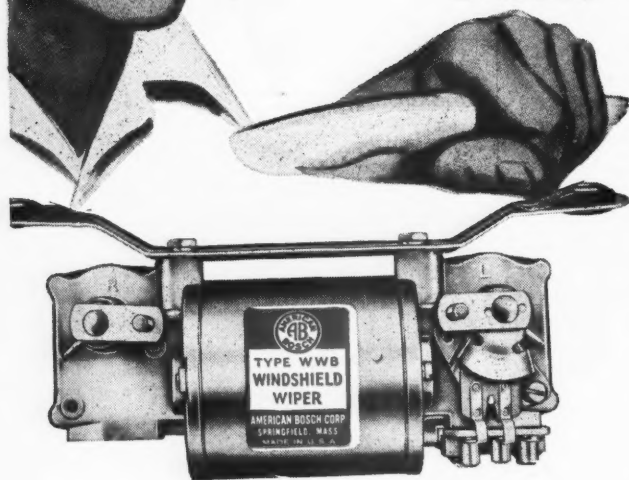
**FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING**



*Put these* **TWIN ARCS of CONSTANT VISION**  
*between drivers and TROUBLE!*



## **AMERICAN BOSCH DIRECT ELECTRIC DRIVE DUAL WINDSHIELD WIPERS**



- ▶ Direct, electric drive with constant action regardless of engine load or speed.
- ▶ Synchronized, two speed operation of Dual arms and blades. Tandem or opposed wiping motion.
- ▶ Fully automatic blade parking, adjustable to suit installation. Arms up to 12" long. Blades up to 14". Wiping angle up to 118°.
- ▶ Bad weather power—30 inch/lbs. torque per blade. Thermal cutout protects wiper motor against overload.
- ▶ Available for 6 or 12 volt systems. For cars, trucks and tractors.

When the weather turns bad, that's when car owners need constant, good vision on the road. You can put them on the clear route to safety with American Bosch **DIRECT ELECTRIC DRIVE** Windshield Wipers. Regardless of engine speed, load or acceleration, they *always* function with unfaltering, synchronized action, because they operate independently of the engine. There's no lag or stuttering of the wiper blades, even in the roughest weather.

Ask about Model WWB—designed for swift, simplified dual installation under cowl on late model cars and trucks. Model WWA for vehicles requiring single wipers also available for header mounting. Rugged, heavy duty American Bosch construction guarantees years of trouble-free service. Write **NOW** for details on this sales-active conversion unit. Already in wide use as original equipment, these Dual Wipers are today's answer to greater safety. You can sell good vision in bad weather—at a real profit!

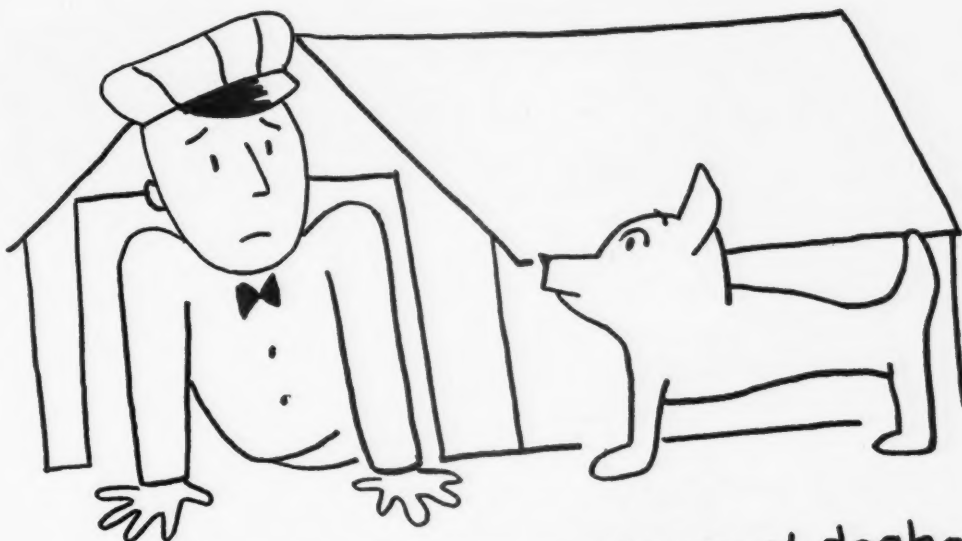


# American Bosch

**MAGNETOS • GENERATORS • VOLTAGE REGULATORS • IGNITION COILS  
ELECTRIC WINDSHIELD WIPERS • DIESEL FUEL INJECTION EQUIPMENT**

**AMERICAN BOSCH CORPORATION • SPRINGFIELD 7 • MASS**





## How to stay out of your customers' doghouse

One way to stay on the good side of customers is to let them know you use only the best replacement parts. So when you install a

new tapered roller bearing, always point out the trade-mark "Timken®"—the name that stands for quality in every customer's mind.

## Just tell 'em it's "TIMKEN®"









OVER 50 years of bearing research and development have made Timken bearings first choice with makers of automobiles, trucks, busses and tractors. And only Timken tapered roller bearings can offer advanced design, special analysis steels, precision manufacture and complete quality control.

When you replace a tapered roller bearing, make sure you do it with a Timken bearing. And be sure to show your customers the trade-mark "Timken". **FREE BOOKLET!** Send today for "Timken Tapered Roller Bearings, Their Care and Maintenance" to Dept AM-1, The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

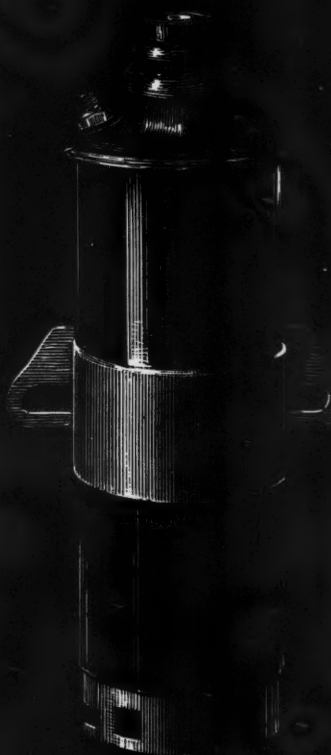
# TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

## TAPERED ROLLER BEARINGS

NOT JUST A BALL  NOT JUST A ROLLER  THE TIMKEN TAPERED ROLLER  BEARING TAKES RADIAL  AND THRUST  LOADS OR ANY COMBINATION 





**ANOTHER ONE OF BLUE STREAK'S  
36,000 BOOSTERS!**

When we say this Blue Streak coil and the connection it makes is *waterproof*, we mean you can even submerge it in a fish bowl full of water, turn on the juice, and it won't bother the coil *or* the fish. (You can see why this coil will never fail whether in a driving rainstorm, on a flooded road or under high humid conditions.)

The three-tiered pagoda top protects the coil against surface leakage or flash-over of high-tension current.

Ask for Blue Streak the next time you order coils—as well as the other premium-grade Blue Streak parts. *Standard Motor Products, Inc., Long Island City 1, New York.*

***Better your Business...  
Buy Blue Streak***



When a Kentuckian gets enthusiastic about something, it must *really* be good. Mr. E. L. Elliott, Franklin, Ky., writes "The Blue Streak ignition bulletins are wonderful, because they tell you in simple language everything you have to know about ignition jobs, and enable you to make greater profits by teaching you how to do the job in less time."



COILS • POINTS • CONDENSERS • VOLTAGE REGULATORS • HEADLIGHT RELAYS • DISTRIBUTOR HEADS & ROTORS • DIMMER SWITCHES • WIRE & CABLE





# PRIDE in PERFECTION

It is an inborn trait. The real mechanic thinks precisely. His materials and equipment must be flawless. He makes no compromise with quality in tools. He applauds perfection in the work of other artisans.


Pride in perfection. That is the reason Bonney wrenches are America's finest —unmatched for lightness, strength, balance, and precision.

Bonney wrenches are the pride of the men who make them... the pride of the men who use them.

BONNEY FORGE & TOOL WORKS  
Allentown, Pennsylvania



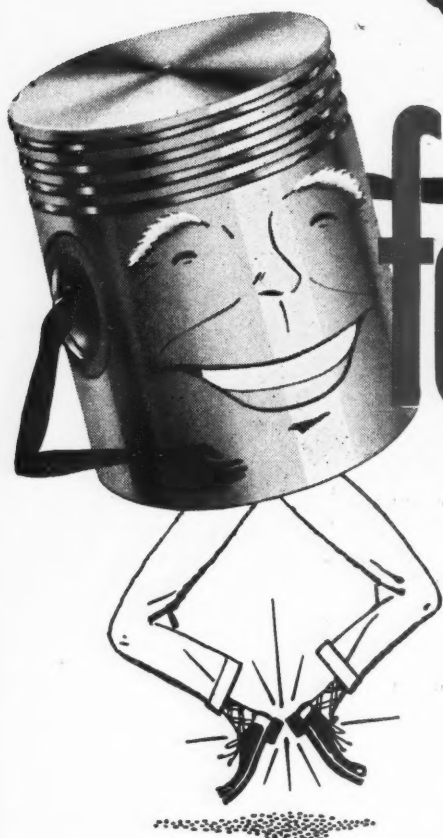
**BONNEY**  
**TOOLS**



Pride in perfection is exemplified in the precision ball and roller bearings produced by leading bearings manufacturers such as SKF, Timken, Fafnir, BCA, and Norma-Hoffmann.



# New Life



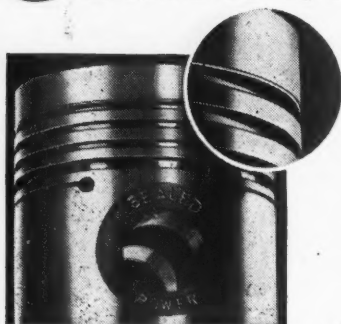
# for Old Pistons

## Sealed Power **SUPER-SIZER**

**The World's Best Piston Resizing Method!**

- |   |   |
|---|---|
| <p><b>1</b> Finished size accurately controlled by split-second timing.</p> <p><b>2</b> Transforms surface metal of piston-pin boss areas into a forged-like structure making expansion permanent.</p> <p><b>3</b> Does not disrupt thrust face surfaces of piston.</p> | <p><b>4</b> Retains original cam-ground shape of piston.</p> <p><b>5</b> Eliminates piston slap and increases ring life.</p> <p><b>6</b> Original close fit of piston is restored.</p> <p><b>7</b> Black dry lubricant provides positive initial lubrication.</p> |
|---|---|

## Sealed Power GI-60 Groove Insert



### MAKES OLD PISTONS NEW! KEEPS NEW PISTONS YOUNG!

The Sealed Power GI-60 Contracting Groove Insert is the only dependable, economical answer to top-ring groove wear. This insert does not float, but is anchored securely at the top of the ring groove. Before the GI-60 is installed, top ring groove is regrooved to a true surface 1/32" wider than before, with a 1/32" recess at the top. The GI-60 locks itself permanently into this recess, forming a heat-treated spring-steel shield that resists heat, wear and pounding better than aluminum or cast iron can. One fleet owner reports GI-60 increases piston life to an average of over 200,000 miles!

*Super Sizer and GI-60 available only through Sealed Power Jobbers.*



# Sealed Power Corporation

MUSKEGON, MICHIGAN



# Chilton's MOTOR AGE

An EDITORIAL

## A Car Is As Good As the Service It Gets



**R**IP OFF a page of old ideas if you want to get a clear look at 1952. The best indications are for those who know how to manage their businesses, how to make a full, honest profit—1952 business will be good. For others, things will be as rough as a cob.

Despite cut backs, there will be plenty

of sales opportunities. Despite good business, the management of profits will be the essential problem of dealers and repair shop owners everywhere. And, for service dealers, your share of potential business will increase—but you'll need the selling spark to tell customers the brown-eyed truth that: *a car is as good as the service it gets.*

*Frank P. Tighe*

EDITOR



# NEW Scene

## *New Plymouth Makes Debut*



The new Plymouth for 1952 offers improvements in the engine, the brakes, the electrical system, the chassis, and to the inside and outside of the body.

Smoother flow of power results from the newly designed combustion chamber. The six-cylinder, 97 horsepower engine has a 7 to 1 compression ratio. Longer life for both the main and rod bearings is achieved through an improved type of base metal.

Several refinements in the new Synchro-Silent transmission are said to permit faster, easier shifting, and more rapid and positive engagement of gears. Less pressure is required to operate the clutch because of a new linkage system. The rear axle is stronger, and there are provisions which

permit more accurate gear and bearing adjustments than formerly.

Operating temperatures up to an additional ten degrees without the hazard of losing water or anti-freeze result from further improvements to the pressure-vent radiator cap, which provides a pressurized cooling system.

New Cyclebond brake linings are designed to provide greater braking area and longer braking life. There are heavier backing plates on both the front and rear brakes; an improved drum design on the front brakes; and an easier operating brake pedal return spring.

Newly designed are the ornament, the top molding, and the medallion on the hood, the license light and name plate on the rear

deck lid, and a new stainless stone shield on the rear fender.

Solex tinted safety glass is available throughout the Plymouth line as optional equipment at small extra cost.

### **Hudson Adds "The Wasp" in a Bee-line for More Sales**

For its 1952 offering Hudson Motor Car Co., has announced the introduction of an entirely new model—the Hudson Wasp. In physical aspect and appointments this is a short wheelbase companion to the Hudson Hornet, but having the same wheelbase—119 in.—as the Pacemaker. The Wasp is powered by the basic 262 cu. in., 6-cylinder engine found in the current Commodore Six which has an output of 127 bhp.

The 1952 line now consists of the Commodore Six and Eight, the Pacemaker, the Wasp, and Hornet. Price of the Wasp, although not available at introduction, is expected to be between that of the Commodore Six and the Hornet. In any event, it will be priced to compete with cars in the so-called medium price class.

The entire line has been given fresh interior styling, with new nylon fabrics and accent on color harmony. Visually, exterior treatment has been made still more interesting by new molding and decorative features best appreciated by examining the cars.



## West Coast Service Depts. Operating On Swing Shifts

By R. T. Reinhardt

Swing shift auto repairing is on the increase in San Francisco. Whether customer pressure for fast service or just the garages' desire to utilize more completely their facilities is the cause isn't readily determined.

Early last month the fifth major dealer began offering complete mechanical repairs until 1 a.m. and today is considering increasing his night crew of 10 men to 20 because of favorable customer reaction.

This latest addition to night-owl service is the James F. Waters, Inc., De Soto-Plymouth. From 7 a.m. until 1 a.m. the motorist can drive in expecting any type of repair or service his car needs. Even new car service checks are made in the late hours.

Although wage rates after 6 p.m. go up 10 pct until midnight and then up 15 pct over day rates after that time, these service operators are absorbing the added labor costs believing customer satisfaction and appreciation will pay off in the long run.

In addition to the five dealers operating on the swing shift there

are several independent garages offering minor repair services until the wee small hours. However, the dealers are prepared to handle any and all jobs except body repairs. They feel this operation requires better lighting facilities than they now have. However, James F. Waters is considering inclusion of this service.

In San Francisco there are about 4000 auto mechanics at work on regular day shifts and so far only about 50 work on the swing. It appears this swing shift is to the liking of many of these men, who can use the overtime pay and enjoy daylight leisure.

These are the dealers now operating swing repair shifts in San Francisco and their crews:

Les Vogel Chevrolet Co., 12 men; Don Gilmore (Chev.), 7 men; James F. Waters, Inc. (DeSoto-Ply.), 10 men; S. & C. Motors (Ford), 7 men; J. W. Allen Co. (Ply.-DeSoto), 10 men.

Other dealers and independent garages are watching this trend with interest, knowing that if popularly received it will afford full utilization of equipment and spread overhead around the clock.

Major feature, however, is a change in the roof panel and rear quarter panels to effect the appearance of "hard-top" styling so prevalent in the industry.



Weather in many sections slowed used car sales appreciably.

## Midwest Optimistic

### Chicago Show Shaping Up

by John L. Gardner

"More promise than any of its 43 predecessors," is the way the 44th Chicago Automobile Show, Feb. 16 through 24, is shaping up, reports E. L. Cleary, manager of the Chicago Automobile Trade Assn. Dealer interest is keener than ever, and as for exhibit space, less than 5000 sq. ft. remained available at this writing for suppliers and other so-called "fringe" exhibitors.

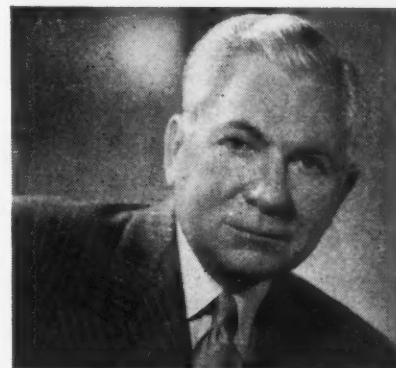
The show committee met in Detroit last month when first-hand

information was given to auto factory executives, publicity and promotion managers and advertising men. There is greater factory interest than ever before, with every indication that dealers will be given more cooperation in presentation of exhibits than at any time in the past two decades.

Talks with key midwest dealers present at the showing of Lincoln-Mercury 1952 models in Chicago last month indicated a good year ahead as we enter 1952. This, despite talks of cutbacks, price

(Continued on page 37)

## Spencer Becomes New Packard Executive V-P



LeRoy Spencer has taken over his duties as executive vice president of the Packard Motor Company. He became vice president of Packard in September, 1950. Prior to that he was vice president and director of Earl C. Anthony, Inc., Packard distributor for California.



# NOW! Industry's most famous electric drill is finer than ever!

**NEW Black & Decker  
1/4" Heavy-Duty  
HOLGUN\*  
only \$44<sup>00</sup>**



- ★ Built to take it—husky, high-quality parts make it really **HEAVY-DUTY!**
- ★ B&D-built motor has 25% **MORE POWER**, can't be stalled at rated capacity! Can be supplied with any one of six spindle speeds, from high torque at 600 r.p.m. to high speed at 5,000 r.p.m.
- ★ Light weight (only 3¼ lbs.) cuts fatigue to the bone!
- ★ Unmatched for close-quarter drilling—only 7¼" length—only ¾" spindle offset!
- ★ New handle shaped for plenty of finger room!



\*Trade Mark Reg. U. S. Pat. Off.

## TRY THIS HUSKY HANDFUL OF POWER YOURSELF . . . TODAY!



**WORLD'S LARGEST, MOST COMPLETE LINE**

Let your nearby Black & Decker Distributor demonstrate this latest version of the most famous Drill in the electric tool industry! See for yourself how it will save you money, muscle and man-hours! See for yourself why experienced tool buyers hail it as a real champion! Or, write for full details to: **THE BLACK & DECKER MFG. CO., 627 Pennsylvania Ave., Towson 4, Md.**



## Chicago Show

Continued from Page 35

boosts, raw material shortages and other impedimenta that becloud the crystal ball. One dealer even offered the opinion the crystal ball in which Ford Motor Co. advised would-be customers to peer may give way to a plastic ball in '52 because of shortages.

Benson Ford, vice-president of Ford Motor Co., told MOTOR AGE in an interview that the 1952 outlook is as bright as can be expected by virtue of the 28 to 29 percent cutback the industry faces. At least the industry, in Mr. Ford's opinion, can sell the 930,000 cars they will be permitted to make under CMP regulations.

Among dealers handling the independents, inventories of 1951 models are pared down substantially from what was anticipated here several months ago.

Midwest used car dealers reacted for the most part unfavorably toward the new M-92 order of NPA requiring wreckers to get rid of models prior to 1946 before accepting cars from used car dealers.

Trade circles noted that it may upset the old "used car parts inventory," which is almost automatically taken care of through car wreckers' yards.

## Ford's New Engine Outlined

Integral valve guides for lower valve temperatures, a four-main bearing crankshaft, with provision made for future use of seven main bearings, and valve rotators of ingenious design are among the special features of the new Ford overhead-valve six-cyl engine. This was disclosed by E. S. MacPherson, chief engineer, Ford Motor Co., at a meeting of the Society of Automotive Engineers held in Chicago last month. The new engine has a deep crankcase structure that provides a stiffer support for the crankshaft and extra-rigid engine mounting at the rear, and permits use of a shallow oil pan with a flat sealing surface. According to Mr. MacPherson, more power is developed with less piston displacement. The high compression ratio combustion chamber is designed to operate on regular grade gasolines.

## Morris & Austin Merger

Merger plans of the Nuffield Organization of England and Austin Motor Company, Ltd., will not affect the present American marketing programs of either company.

The merger brings together two of Great Britain's largest automobile manufacturers, whose combined organization will rank fourth in production to General Motors, Ford and Chrysler.



(l to r) Ed. Ronan, PATA president, Ed. Sullivan, Star of Toast of the Town, and J. Eustace Wolfington, past president of PATA.

## Dealers Honor Sullivan

Ed Sullivan, nationally known newspaperman and star of Lincoln-Mercury's "Toast of the Town," was given the Distinguished Service Award of the Philadelphia Automobile Trade Association from Edward J. Ronan, left, PATA president, at the group's annual meeting held at the Warwick Hotel, Philadelphia, last month. The award, made to Sullivan as "America's Outstanding Automobile Salesman," was presented for his public relations and merchandising efforts on behalf of the automobile industry.

At the annual election of officers of PATA, Edward J. Ronan, Dodge-Plymouth dealer, was named president of the trade group for the third successive term.

Also re-elected to officer posts of PATA for a third term were John B. White, Ford dealer, vice-president; William T. Plachter, Cadillac-Oldsmobile, secretary; and M. B. Janes, Ford, treasurer.

Named to the board of directors for three-year terms were each of the officers and R. E. Yakes, Buick dealer. George Gorson, Chrysler-Plymouth, was elected for a one-year term.

Ronan, who is president of Ronan Motors and of Alco Auto Parts, Inc., is also a member of the OPS Automobile Retailers Advisory Committee, and is chairman of the Pennsylvania Safety Advisory Committee.

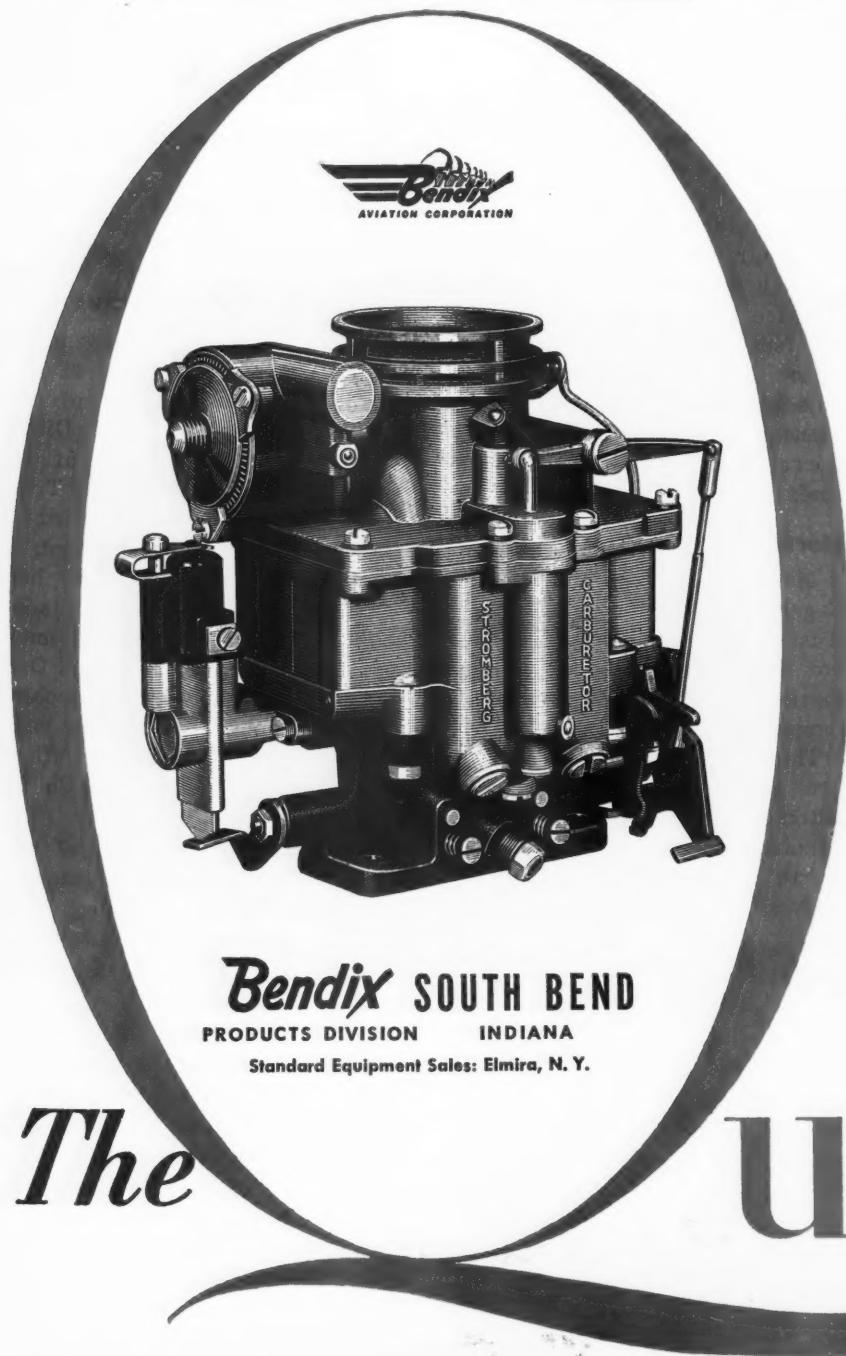


Tony Bettenhausen, 1951 American Automobile Association dirt track champion (left), receives the "Champion Sportsman of the Month" award from Robert Stranahan, Jr. (right), vice president of the Champion Spark Plug Company at a dinner held recently in honor of Bettenhausen. Jack Mehan (center), former chief steward at Indianapolis Speedway and head of Distributors Institute, presided at the presentation. Other sports notables who have received the award are Lee Wallard, Golfer Ben Hogan, Connie Mack and Donk Walker.



# STROMBERG

*For Performance that Builds Your Reputation as Well as Ours!*



**Bendix SOUTH BEND**  
PRODUCTS DIVISION INDIANA  
Standard Equipment Sales: Elmira, N. Y.

When you install a Stromberg\* Carburetor, you are assuring your customer of carburetor performance *second to none*—performance that is bound to mean a smoother running car and important savings in gasoline dollars. These are results you can count on, because Stromberg quality is built in *right* from the start—with exclusive engineering features, scientific design and mechanical simplicity that make it easy to do a good job every time. And remember, Stromberg Carburetors last longer, too. \*REG. U.S. PAT. OFF.

*These Bendix signs stand for good business and for good business relations between factory, dealer and customer.*



Replacement Carburetors  
—Repair Kits



Original Equipment on  
most cars



Hydrovac\* Power Brake  
—Trailer Power Braking  
Systems

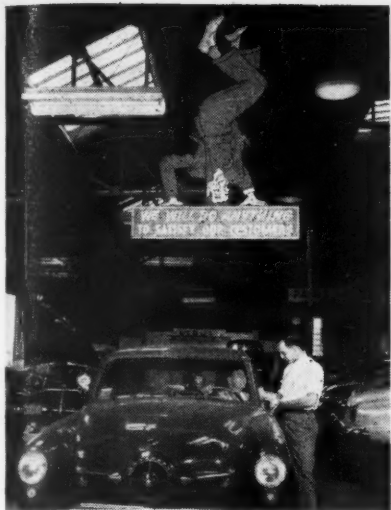


Cold Immersion Parts  
Cleaner saves time and  
money

# The Quality CARBURETOR

Canadian Sales: Bendix-Eclipse of Canada, Ltd., Windsor, Ontario, Canada • Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.





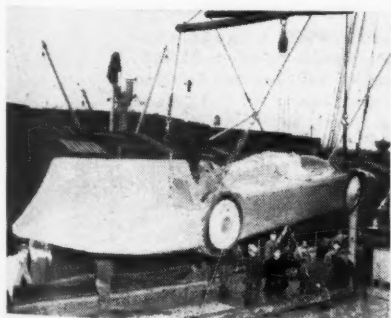
"We will do anything to satisfy our customers" reads the sign at Stout's Studebaker service department, Upper Darby, Pa. The character is standing on his head.

### "Automobiles Are Essential" Theme at N.A.D.A. Convention

With advance registrations rolling in high, N.A.D.A. is looking forward to an attendance of 12,000 dealers, service personnel and factory people at its annual convention in New York City, Jan. 27-30.

General meetings will be held at the 71st Regiment Armory while an Equipment Exhibition will be featured in the Grand Central Palace. N.A.D.A. headquarters will be at the Waldorf-Astoria Hotel.

The convention theme, "Automobiles—Essential to America," will be developed in discussions of improved methods of servicing the nation's fifty million automobiles and trucks, hard-worked under today's defense program.



Longshoremen swing up Sir Malcom Campbell's record breaking "Bluebird" from the hull of the American Harvester after its recent arrival in New York. The car, the first to travel at 300 mph, may be modified in the U.S. for another attempt on the record.

## '52 Defense Controls Will Affect Automotive Output

By Karl Rannells

The national economy is running at its highest level in history. Production of goods and services in the United States is now at a rate of more than \$325 billion a year. This is expected to increase by 10 per cent this year, regardless of Korean developments.

It now requires a work force of more than 61 million workers to produce these goods and services. For it they receive in excess of \$175 billion annually and enough money from other sources such as dividends, interest, rents, and so on to raise total personal income to \$250 billion. Both the labor force and income will increase during 1952.

This all adds up to the belief in Washington that the outlook in 1952 for the national economy as a whole is good—although some parts of the economy will have tough sledding as the defense program gets into high gear during the first six months.

Keeping in mind that new and sudden developments could change the picture overnight, the official thinking in general is summarized somewhat as follows:

Construction, commercial—Tight controls will continue over all garage, service station, truck terminal, store and similar construction where more than 30 tons of steel and one ton of aluminum is needed in any one quarter. Those who need less can certify their own orders but have to find their own suppliers. There will be 30 to 40 per cent less building of these types than in 1951 although garages and the like are generally regarded as essential.

Passenger cars—DTA also says that a minimum of 4,000,000 cars a year must be made for several years to prevent transportation breakdown. NPA set this goal for 1952 and allocated materials for 930,000 units for first quarter. Outlook is that steel, aluminum and copper shortages may pull

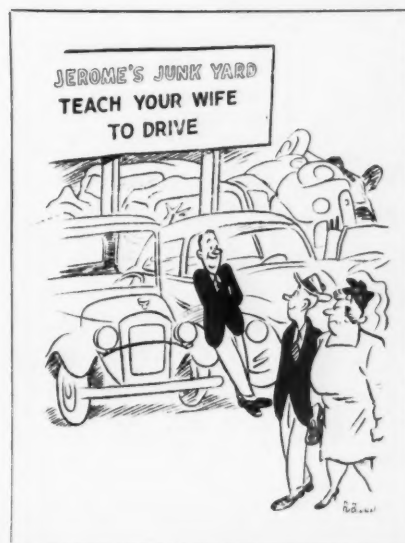
first quarter production back closer to 700,000, one NPA official says. Second quarter may not be any better.

Parts—Attempt will be made by control officials to keep parts production at 100 per cent or higher levels. Reason is the growing number of trucks and cars of five years or older. Replacement supply may be eased slightly because of reduced demand for output of new vehicles. But supply is seen as remaining tight, particularly for such items as radiators where as yet there is no adequate substitute for copper.

Batteries—Lead shortage is acute but attempt will be made to allocate sufficient materials to keep production above 26,000,000 units in 1952. Allowing for reduced demand for new cars, this would just about balance out replacement needs which are estimated at 22,000,000 batteries.

Tires—Threat of tire shortages has virtually disappeared. Removal of most restrictions on rubber makes it probable that 1952 production will go above 70,000,000 mark. Reduction in new cars' needs will turn loose at least 8,000,000 for replacement use.

Gasoline—No rationing. But there will be still lower octane ratings as military needs increase.





# DITZLER SUPPLIES EVERYTHING A PAINT SHOP NEEDS!

● Every Ditzler Automotive Finish is the best that nearly half a century of specialization can produce. Ditzler began by making fine japan colors for carriages. As the modern motor car evolved from the horseless carriage, Ditzler developed and perfected many new finishes of finest quality for leading automobile, truck and bus manufacturers. Today, Ditzler's complete line includes everything needed to make a car look better longer. That's why so many paint shops use Ditzler finishes. Operators know that these fine finishes do the job more efficiently, more economically and with greater satisfaction to the car owner.

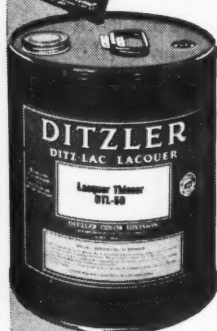


● Thousands of lacquer colors in Two-Star\*\* quality are available for matching original factory-baked enamel or lacquer finishes. Also suitable for complete refinish jobs.



● No better lacquer primer surfacer is made than Ditzler's Rip Rap. Its high solid content makes fewer coats necessary. Sands easily—feathers out without chipping or splitting.

● Ditzlac Spot Putty is easy to use and has excellent filling, adhesion, sanding and fast-drying properties. Comes in economical one-pound tubes.



● Better-looking lacquer jobs with less labor are the result when Ditzler Lacquers are reduced with one of Ditzler's versatile thinners. There is no economy in inferior, unbalanced thinners.

## COLORS

● Thousands of colors in famous Ditzco Quickset Enamel for repairing baked enamel factory finishes. Also hundreds of commercial colors for trucks.

## PRIMER SURFACERS

● Ditzler's line of DZE colored synthetic undercoats is unsurpassed among refinishing materials for adhesion, good filling and easy sanding.

## PUTTIES

● Ditzco synthetic glazing and spot putties can be applied directly to the metal or on top of the undercoat. Available in Gray, White and Oxide Red.

## THINNERS

● Ditzler offers a number of synthetic enamel reducers to suit all spraying conditions. These reducers are available for hot or cold weather and normal temperatures—also for baking purposes.



## A Few More Of The Many Other DITZLER Products

Clear Lacquer-DCL-137, Clear Synthetic-DCE-340, White Enamel-DQE-8000, Black Enamel-DQE-9000, White Lacquer-DHL-8000, Black Lacquer-DAL-9000, Sealer Gloss-DL-900, Squeegee-DZL-1265, Wax and Grease Remover-DX-414, Silicone-DX-515, Metal Cleaner & Rust Remover-DX-453, Lacquer and Enamel Remover, DX-500, Lacquer Rubbing Compound (fast) DRX-45, Lacquer and Enamel Rubbing Compound (Mild) DRX-25, Canvas Sealer DX-498, Wood Preserver and Sealer DX-707, Black Rubber Dressing DX-9008, Engine Enamels, Wood Fillers, Graining Kits, etc.

DITZLER COLOR DIVISION  
PITTSBURGH PLATE GLASS COMPANY  
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PITTSBURGH PLATE GLASS COMPANY

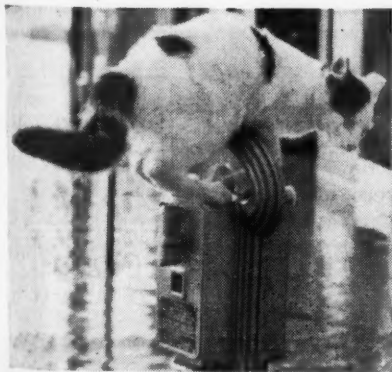


## Public Criticism Disclosed By N.A.D.A. Opinion Survey

Results of a survey made at the request of N. A. D. A. to seek out public opinion on new car dealers were made known last month. In an article by J. Eustace Wolfington, chairman, N.A.D.A. Public Relations Committee, appearing in the *N.A.D.A. magazine* "two alarming situations" were disclosed. 1. Only about half of car owners bring their cars to new car dealers for maintenance and repairs. 2. Older people have higher opinions of most new car dealers than the younger people.

In commenting on adverse opinion expressed by many, Mr. Wolfington wrote, "as they apply to all automobile dealers, of course, these opinions are misconceptions. You know very well that they are not true of all new car dealers. But they represent general public opinion. They are exactly the kind of criticism and misconception the N.A.D.A. was looking for when it commissioned this survey in the first place, such misconceptions need correcting and such criticisms if they be found justified, demand action."

N.A.D.A. has a continuing public relations in effect and will shortly announce a plan of positive action in the way of public education. In the meantime N.A.D.A. has been awarded the Silver Anvil award of the American Public Relations Assn. for "the most notable 1950-51 Public Relations Performance."



Parking violations are far from this feline's intention as she perches high on a meter in Chester, Illinois. When the "Big Muddy" recently flooded the alleys she was accustomed to roam, she quickly sought the nearest high spot. P. S. She was rescued and returned safely to her owner.

## Sears Introduces "All State"

Following close on the heels of the recent Sears, Roebuck announcement of their plans to merchandise an automobile, the "All State," through nineteen of their retail outlets, the Industry Relations Committee of National Automobile Dealers Assn, expressed concern over the proposed plan of distribution. George F. Ziesmer of Mankato, Minn., chairman of the committee, pointed out "this method of retailing and merchandising of passenger cars can only lead to disruption of established automobile retail practices and regardless of promises to the contrary, the purchasers of these vehicles may suffer from the lack of availability of replacement parts and good service. This will of course increase the cost to the motoring public." The Industry Relations Committee of NADA plans a complete investigation of this trend and will report in full to the Board of Directors and Executive Committee of NADA.



The All State, as the car is named, is produced for Sears by Kaiser-Fraser Corp. in standard and deluxe models with a choice of either a four or a six L-head design engine. These engines are manufactured by Willys. With certain modifications the car is the Henry J. Basic factory delivered prices including Federal Tax but not including State Taxes, will range from \$1395 for the standard four cylinder model to \$1796 for the deluxe six-cylinder equipped with overdrive. Used cars will be taken in trade by the Sears, Roebuck outlets. It will be located in the following eighteen localities: Birmingham, Alabama, Knoxville and Memphis, Tenn.; Richmond, Norfolk and Portsmouth, Virginia; Fayetteville, N. C.; Jackson, Miss.; Orlando, Fla.; Little Rock, Ark.; San Antonio, Houston, Baytown, Beaumont, Waco, Lubbock and Dallas, Texas; and Phoenix, Arizona.

### Penna. Dealers Lend 300 Cars For H. S. Driver Training

Since 1945, when there were only three dual-control cars in use in Pennsylvania schools, the driver training program, spearheaded by the Pennsylvania Automotive Assn., has developed to a point where in this school term 300 cars have been loaned by automobile dealers to nearly 300 schools for dual instruction. This means that nearly one-third of Pennsylvania high schools can now offer behind-the-wheel instruction and that all of the cars in use are loaned by Pennsylvania automobile dealers.

### Utah Governor Appoints Dealer To Highway Patrol Commission

Governor J. Bracken Lee of Utah has honored automobile dealer Oral J. Wilkinson with an appointment as Commissioner in the Highway Patrol Civil Service Commission. Mr. Wilkinson is very well qualified for the position. His interests include operation of Zion Motors, DeSoto-Plymouth dealers, Murray; Midtown Motors, Kaiser-Fraser Distributors, Salt Lake City; Diamond T Utah and Radio Station KMUR at Murray, Utah. He is a resident of Murray.



# Electronic Baking MILLION DOLLAR IMPROVEMENT IN CORK GASKETS

More dependable performance  
assured by this New  
Curing Process



**ONLY ARMSTRONG-VICTOR GASKETS  
GIVE YOU THESE ADVANTAGES!**

This development was no small undertaking. Only the vast resources of Armstrong-Victor made it possible.

You'll have no more of old-fashioned steam-cured cork when you see what Electronic Baking does for you in Armstrong-Victor Gaskets. They handle easier . . . they're stronger . . . more pliable. They seal tighter and stay tighter because they're more resilient. Yet, they cost no more than ordinary gaskets.

You can put more confidence in every job you seal with these new, improved Armstrong-Victor gaskets. They'll help build your reputation for dependable work. Your Victor Jobber can supply them now—in packaged sets or individual pieces—whatever you need, for every make and model.

Victor Manufacturing & Gasket Company,  
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**VIC CORKY SAYS:** Only genuine  
Armstrong-Victor Replacement  
Gaskets have this exclusive trade-  
mark—the two notches. Insist on it.



## GREATER STRENGTH

Electronic Baking gives cork composition greater tensile strength than steam-cured cork. Makes Armstrong-Victor gaskets more pliable . . . easier to handle . . . less likely to break or crack.

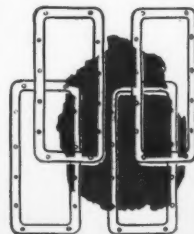


## MORE SEALING POWER

Electronic Baking preserves more natural liveliness of raw cork. This greater resiliency gives Armstrong-Victor gaskets greater sealing power. Compression tests show almost 100% uniformity of recovery.

## MORE UNIFORM QUALITY

Electronic Baking eliminates over-curing or under-curing of cork composition. Assures maximum uniformity of density, strength, resilience and color—never possible with steam curing.



# Armstrong-Victor





# New Line for the Studebaker



The "Starliner," a five-passenger, hardtop convertible, is the pace car for Studebaker's 1952 models. This newest body style by Studebaker is offered in both the Champion and Commander lines, and is available in eleven different two-tone color combinations and two upholstery options.

Externally, the '52 Studebakers reveal entirely new front-end treatment and substantial re-styling in the rear. Hoods are longer and lower, with new emblems and ornaments. Grilles embody wrap-around styling and stand out as the most distinctive front-end features of the new models. The massive wrap-around bumpers are equipped with four vertical guards: two, located under the headlamps, and two smaller guards to protect the license plate from damage. Headlamp rims have been re-designed and parking lights, also of new design, are larger.

The most significant changes in the rear are found in the tail lights and trunk lid handles. The tail lights appear now as integral parts of the rear fenders rather than "added-on" assemblies. New hood and fender ornaments, along with re-designed stainless steel gravel pads on State Commander, Land Cruiser, convertible and "Starliner" models complete the more prominent exterior alterations.

Softer and easier brake action is claimed to have been achieved by changes in the brake pedal linkage, the adoption of floating rear shoes in all brakes, and brake linings with greater resistance to "fading." The use of floating, rather than fixed, rear shoes in the brakes makes both front and rear shoes completely self-adjusting.

Other innovations include instrument panel push button starting on all models equipped with automatic drive, a new type of starter for the Commander which is held in positive engagement until the engine

is fully operating, moisture-proof ignition systems, and a boost in the generator output to 45 amperes on both the Champion and Commander.

Studebaker's V-8 power plant remains essentially unchanged. The 6-cylinder engine which powers the Champion series likewise reflects no basic changes.

Heat-resisting, glare-reducing glass for windshields, side and rear windows is optional on all '52 models. Rear view visibility on convertibles has been greatly increased by enlarging the rear window areas by nearly 266 sq. in.

## AAA Sponsorship

### '51 Auto Racing's Big Year

By Jack Montgomery

Drivers and car owners enjoyed a most successful year racing under AAA supervision. Fifteen national events were held with more prizes distributed than in any other year. The average purse for all races was over \$3000. Midget racers also had a good year money-wise. Other activities included three stock car races at the Wisconsin State Fair Grounds. New International and American class records were established by Lt. Goldie Gardner of England

and by Ab Jenkins of U. S. A.

The car of the year was the Belanger Special, owned by Murrell Balanger of Crown Point, Ill. It not only won the Indianapolis 500-Mile, piloted by Lee Wallard who later was severely burned while competing in another race at Reading Fair Grounds, but it went on to win the Milwaukee 100-Mile, the Langhorne 100-Mile, Springfield 100-Mile, Duquoin 100-Mile, Syracuse 100-Mile, Denver 100-Mile, and San Jose, Calif. 100-Mile, chauffeured by Tony Bettenhausen plus two seconds.

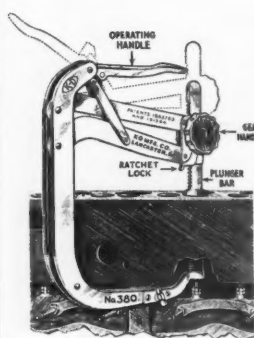


K-D MFG. CO.  
LANCASTER, PA.

# K-D® TOOLS

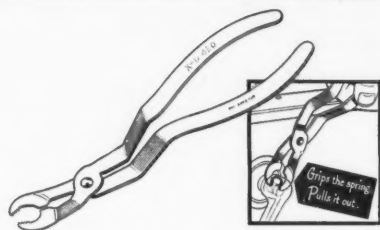
## Note these for your Toolbox!

Reliable #380 Compressor → #430 Door Handle Spring Remover →



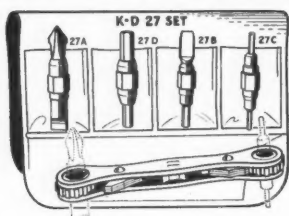
Serves nearly all L-heads and valve in heads, old or new. Exclusive automatic depth adjustment and quick operating handle make it

fast & easy to use. Most universal tool on the market. 2 prs. jaws furnished.



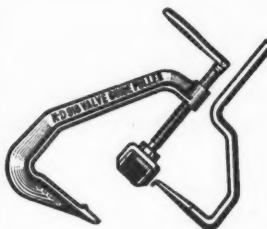
Serves all G.M. cars, 1933 to date, also 1951 Ford, Mercury, and Lincoln! Thin jaws reach behind escutcheon plate, remove horseshoe spring fast, easy.

#27 Ratchet Bit Set →



Fits all 4 types + + - ●

A 3 7/8" double end wrench with 8 bits. One bit for Phillips, Reed & Prince screws, sizes 0-12. 5 bits for hex keys, sizes 5/64" to 3/16". 2 bits for standard screw slots. Plastic case.

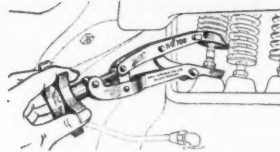


920 Valve Guide Puller Set...for Ford-built V8's since 1932\*. Pulls assemblies no matter how tight they're

stuck. 917 Driver removes retainers. 918 Puller removes assembly.

\*On 150 hp, use K-D 930, 935.

Two necessary Ford Tools →



K-D 700 Screw type Lifter for all Ford 6 valves after '48. Also all 6 cyl. Chrysler-built and other deep-set motors. Very short, 8" long.

(At Toolbars everywhere)

# K-D TOOLS®

## MAKE HARD JOBS EASY!

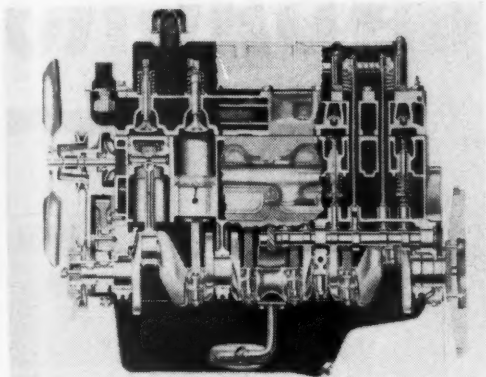
#110 Contact Point Wrench →

Removes, installs stationary points on Auto-lite type distributors. Gear driven socket spins points in, out. Clearance gauges from .015"-.040".





# Willys Introduces Passenger Car



Willys - Overland recently announced a line of passenger cars for the 1952 season. It will consist of DeLuxe, Super DeLuxe and Custom series in a variety of body styles. At the outset, however, only the Super DeLuxe and Custom models will be available and these in the two-door body style only. The next step will be the introduction of a four-door sedan in the Custom line. The car has a wheel base of 108 inches. Overall length, bumper to bumper is 180 $\frac{7}{8}$  inches. Body width at widest section is 72 inches and overall height loaded is 60 inches. Seat width is 61 inches and width at shoulder height is 57 $\frac{1}{4}$  inches. Curb weight of the two-door sedan is around 2664 lbs.

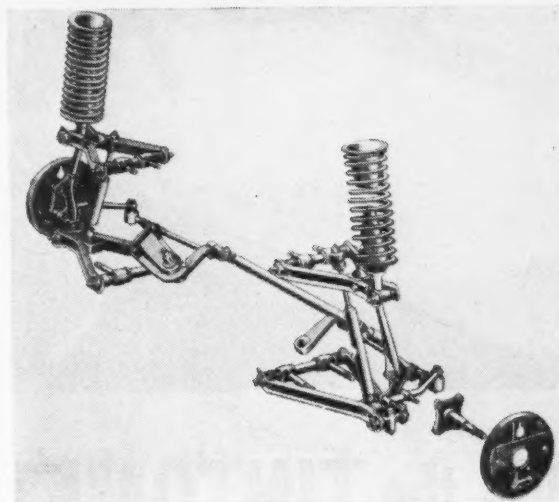
This announcement also incorporated the introduction of the long-awaited F-head conversion of the six-cylinder engine, standard on Super DeLuxe and Custom passenger car models. It has a rating of 90 bhp at 4400 rpm. The four-cylinder F-head engine, announced some months ago will be made available for export only. The DeLuxe series to be announced later will continue with the present L-head engine.

According to Willys engineering department tests, the following performance data were recorded: from standing start to 60 mph through all gears in 17 $\frac{1}{2}$  seconds; maximum speed with overdrive, 90 mph; with direct drive, 85 mph; engine revolutions per mile, 2520 with

Above left. The F-head six-cylinder engine, shown in cross section. It is rated at 90 bhp at 4400 rpm.

Above right. The Custom DeLuxe two door sedan. Wheel-base is 108 inches, overall length, 180 $\frac{7}{8}$  inches.

Right. The new front suspension. Notice the arrangement of the rubber-mounted coil springs, the upper ends of which recess into the wheel-houses.



overdrive; 3602 with direct drive.

As in the case of the four-cylinder engine conversion, the Six has the intake valve located in the head directly over the piston, while the exhaust valve is in the standard location to one side of the combustion chamber. Intake valve head diameter is 1 $\frac{3}{4}$  in. to assure full charge of air-fuel mixture at all speeds.

The combustion chamber is located partly over the piston and partly over the exhaust valve, and the spark plug is located in the center of the fuel charge. The intake manifold, cast integrally with the head, has full length water jacketing. The exhaust valve areas are also fully water jacketed.

The exhaust valves are fitted with positive valve rotators. The valve springs are self-damping. The

intake valves are of overhead push-rod type, while the exhaust valves which are more subject to temperature variations in the linkage are of conventional type. Three-ring aluminum pistons with the top ring chromium-plated are standard and provided with a heat dam. A spring backed oil control ring is used.

The front suspension system is of coil spring type but differs from conventional mountings in the adoption of a double wheelhouse construction at the front end sheet metal to which the coil spring is mounted. The spring is mounted on a rubber seat fitted in a recess in the housing, the latter construction being responsible for carrying all primary load reactions. As shown, the lower end of the coil spring is mounted on top of the king pin support.



# *The Mysterious Case of the* **VANISHING GREENBACKS**



## How the **TINTOMETER** captured fleeing profits!

This is the way Jim Ryan told it to us. "Have you ever experienced the feeling of a creepy breath of air out of nowhere, that seemed to circle 'round your shoulders, then vanish like a departing spirit?"

"Let me tell you what happened to me right in my own paint shop. I had been working into the night. It was close to eleven o'clock, when I was suddenly startled by what I thought were the cold wings of bats brushing against my neck.

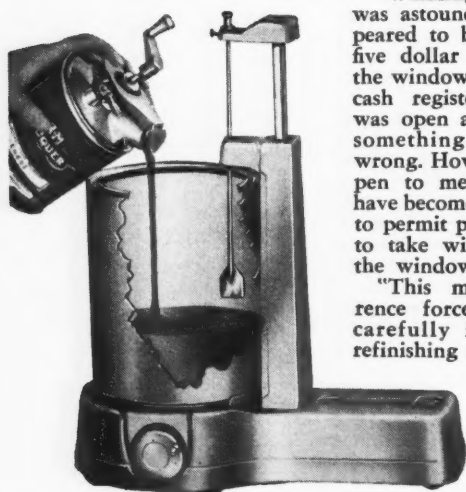
"Whirling on my heels, I was astounded at what appeared to be a quantity of five dollar bills flying out the window. I dashed to my cash register. The drawer was open and I knew that something was horribly wrong. How could this happen to me? How could I have become careless enough to permit part of my profits to take wings and fly out the window?"

"This mysterious occurrence forced me to check carefully into my entire refinishing operation. I was

determined to put a stop to this or die in the attempt. "A thorough investigation opened my eyes. These fleeing profits were the result of *waste . . .* in the form of a great pile of half-filled, dried-out paint cans . . . most of which would eventually be tossed out the window!"

"Fortunately I talked to our jobber who recommended the R-M Tintometer. We installed it immediately. Now we prepare *only* the amount needed to complete the refinishing job at hand, and our paint inventory is under control! We prepare any of thousands of car colors in lacquer or enamel, without waste and without delay. Further, the formulas supplied with the R-M system show us what color to add to compensate for any weathering and drifting which may have occurred on the car."

*Ask your Jobber to show you the latest R-M Refinishers' slide film, "Pat, the Pixie Painter."*



Write today for your copy of the helpful R-M Refinishers' Manual.



5935 MILFORD AVE., DETROIT 10, MICH.

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Manufacturers of passenger and commercial car lacquers • enamels • primers • surfacers • tinting colors • thinners • removers • rubbing compounds, etc.







# LINCOLN'S

## Completely NEW Design

A lighter, more powerful OHV V-8 engine, a radically new front suspension, and major changes in body styling make the Lincoln completely new for '52

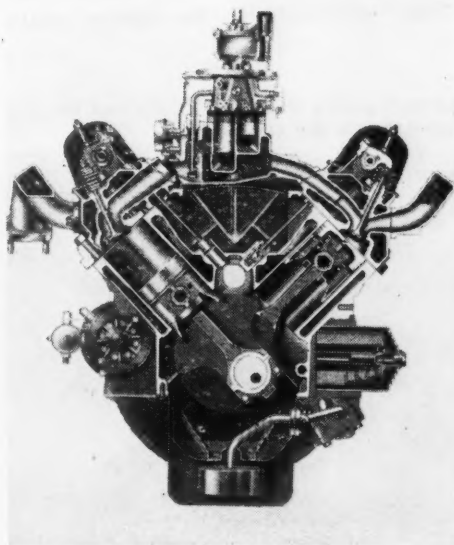
by Joseph Geschelin

**L**INCOLN cars for 1952 are completely new from stem to stern—new bodies; new chassis; a new overhead valve, 90-deg. V-8 engine rated 160 bhp; and a unique front suspension system differing radically from those commonly in use.

The combination of new bodies and new engine has made it possible to reduce overall bumper-to-bumper length by eight in. and extreme width by one inch. Wheelbase too has been reduced by two-inches, to 123 in. The new model is considerably lighter.

The line-up of body styles is as follows: Lincoln Cosmopolitan—Sport Coupe—Hardtop body; Custom 4-door Sedan—the basic sedan model. Lincoln Capri—Capri Coupe—Hardtop Styling; Special Custom Capri; Convertible with electrically-operated top mechanism; Special Custom Capri 4-door Sedan.

The new engine is over 100 lb lighter than the former engine. Because of improved heat rejection characteristics, the cooling system capacity has been reduced from the previous 34½ qt to but 24½ qt. The reduction in radi-



Engine cross section of oil pump location, integral oil filter and valve arrangement.



## LINCOLN'S New Design

ator size also conserves much needed copper.

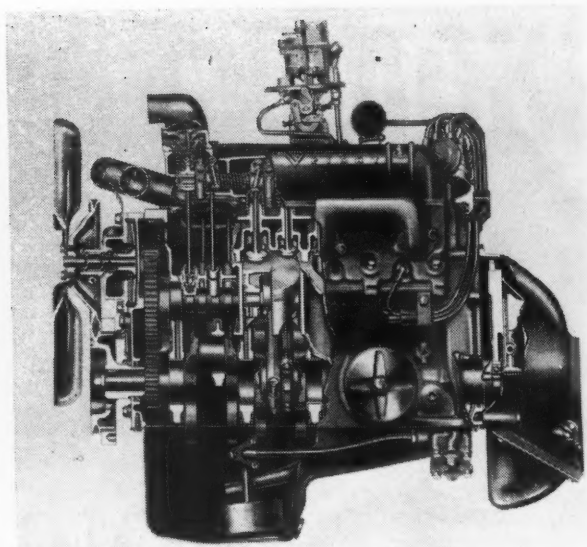
Out of a long range program going back about four years has emerged the 90 deg. V-type overhead valve 8-cyl engine. It has a maximum bhp rating of 160 at 3900 rpm.

Examination of the principal cross-sections will provide an excellent picture of the structure—the short, rigid cylinder block and the massive and rigid cylinder heads.

The crankcase structure is deeper than customary, extending well below the main bearing center line. While this was done deliberately to produce a stiff, shallow oilpan, the main objective was to effect a wide, continuous, flat gasket surface as an aid to positive sealing. The oil sump is in front to accommodate installation conditions incident to the new chassis arrangement.

The top side of cylinder heads has been modified to provide a more adequate method of oil sealing at the gasket joint. The sides of the casting have been extended to produce a panrail above the level of the rocker box floor. This results in a continuous face to which the gasket is attached. By raising the level of the cork gasket, the usual pool of oil in the compartment is kept from soaking into the gasket material.

**View of fuel pump location. Pump can be removed from underneath the car.**

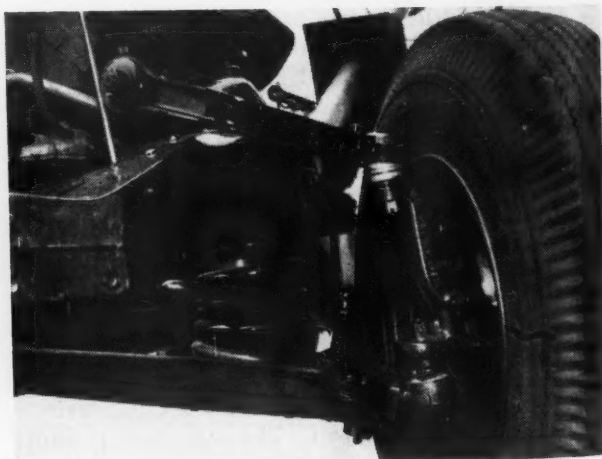


**Longitudinal engine section of timing chain, connecting rods, water pump and vibration damper.**

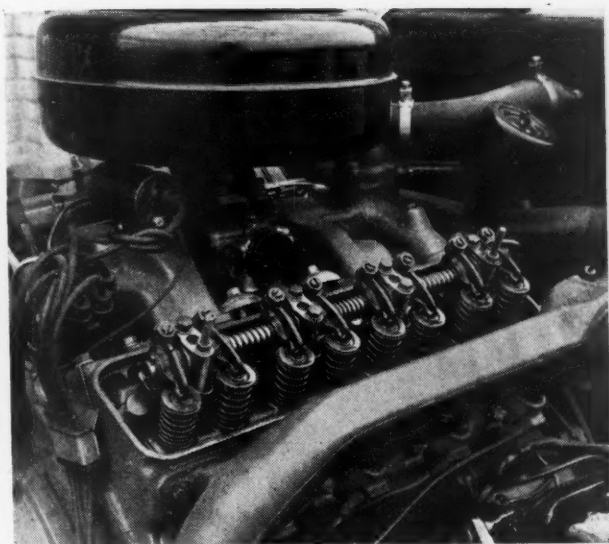
Noteworthy too is the method of attaching cylinder heads to the block, the large bolts being screwed into heavy bosses evenly spaced outside the cylinder walls.

With overhead valve design, the engine features larger diameter valves. Lincoln has discarded conventional valve guides, the valve stems being guided in bores directly in the parent metal of the head. This lowers exhaust valve temperature by 100-125 deg. F. To take care of normal wear of mating surfaces, Lincoln will have available valves with two over-sizes on the valve stem.

**View of new type front suspension knuckle support pivots on ball joints.**







View of rocker arm arrangement. Note the raised portion around the head to seal the rocker cover.



View of master cylinder bolted to dash. This permits the pedals to be suspended from the dash.

In addition, all intake and exhaust valves are fitted with a unique type valve rotator, made by Lincoln, and Johnson hydraulic valve lifters have been adopted this year.

The piston and ring set-up follows the same pattern as on the former engine. Connecting rods, however, are of a new I-beam section design, stemming from stress analysis studies, to achieve rigidity and durability. To this end the outer web is continued right into the edges of the big end, with a counterbore eccentric with the con rod bolt hole. Heads of con rod bolts are specially formed to fit the counterbore and of

the self-locking type which fit in the bore.

Distributor drive now is positive, driving directly from the camshaft gear. The oil pump is then driven through an intermediate shaft with a tongue and fork drive at each end. The oil pump is mounted outside the oilpan on the left hand side of the engine. This was done to simplify maintenance and facilitate removal of the pan from underneath the chassis.

It has a short, stiff, counter-weighted five-bearing crankshaft. Connecting rods are mounted side-by-side on the pins. The vibration damper  
(Continued on page 125)

New concentric bowl type carburetor using the air cleaner for the outer housing.



New location for gas tank filler. License plate bracket pivots to provide access.





# Trouble-Shooting the Fordomatic

Here are some tests on Ford's automatic transmission which can be performed with the use of a few special tools and gages, without need for removing the unit from the car

**B**EFORE doing any work on the transmission the car should be road tested and notes made of the various shifting points, and so forth. It should be checked for leakage. The transmission fluid should be changed at least every 15,000 miles. Remove the converter housing lower plate. Remove one drain plug and then rotate the converter 180 degrees. Remove the second drain plug. Remove the transmission bottom pan drain plug and drain the fluid from the transmission. Reinstall both drain plugs.

Add six quarts of automatic transmission, type A. Start the engine and run at idle speed for approximately two minutes. Then add three quarts more of fluid and bring the transmission to normal operating temperature. Move the selector lever through all its ranges. Then place the selector lever in park position and check the fluid level.

Add fluid if level is not up to the full mark on the dip stick. The capacity of the transmission is approximately nine quarts. To adjust the front band drain the fluid from the transmission into a drain can. Remove the oil pan, then the fluid screen from the transmission. Loosen the front servo adjusting screw lock nut two full turns, using an 11/16 inch wrench. Then pull back on the actuating rod.

Insert the gage block of the front band ad-

by Jack Montgomery  
Technical Editor

justing tool between the servo piston stem and the adjusting screw. Then tighten the adjusting screw until the wrench

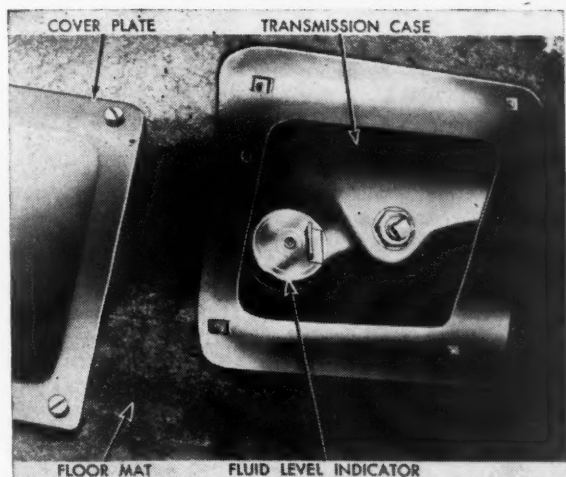
over-runs (as in Fig. 9). Back off the adjusting screw just one complete turn. Then holding the adjusting screw stationary, tighten the lock nut clockwise to 25 ft. lbs. torque.

Remove the gage block. Install the fluid screen and pan using a new gasket. Install a drain plug and torque to 20 to 25 ft. lbs. Refill the transmission to the full mark on the fluid level indicator. If the fluid is in good condition use it over and add new fluid as necessary.

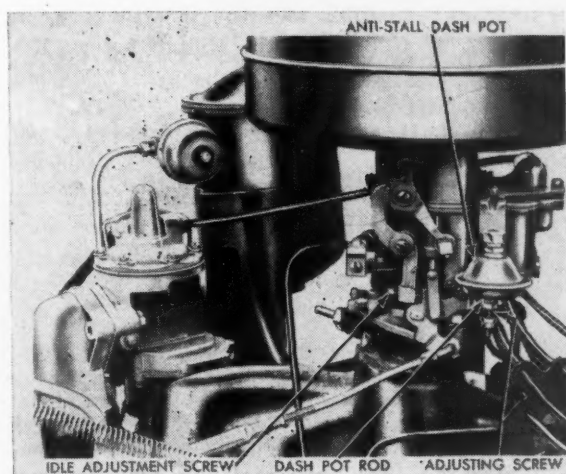
To adjust the rear band, fold back the floor mat to expose the right side of the floor pan. Remove the access hole cover on the right side of the transmission floor pan. Loosen the rear band adjusting lock nut with the tool shown (Fig. 10). Using the T-handle of the tool, tighten the adjusting screw until the wrench over-runs (Fig. 10). (N. B. If the screw is tighter than the wrench capacity—10 ft. lbs.—loosen the screw several turns and re-tighten it until the wrench does over-run.) Back off the adjusting screw one and one-half turns. Hold the adjusting screw stationary and tighten the adjusting screw lock nut to approximately 35 to 40 lbs. Install the inspection plate and replace the floor mat.

Many troubles can be diagnosed by making a





**Fig. 1.** Location of fluid level indicator at the right side under floor mat. Remove cover plate.

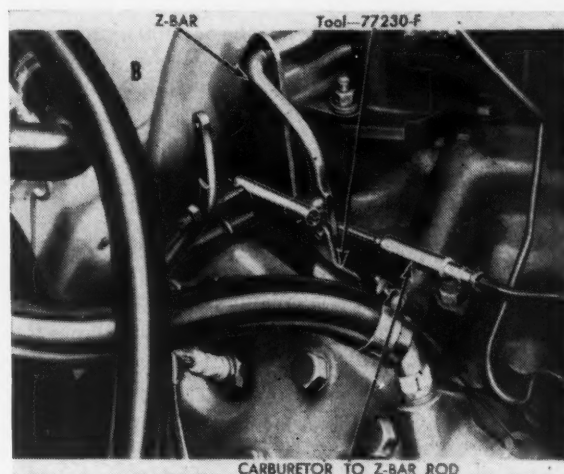


**Fig. 2.** View showing various adjusting screws. Attach a tachometer and set idle speed to 425 RPM.

**Fig. 3.** Remove manual rod and adjust the sleeve so the indicator is against the stop in "drive" position.

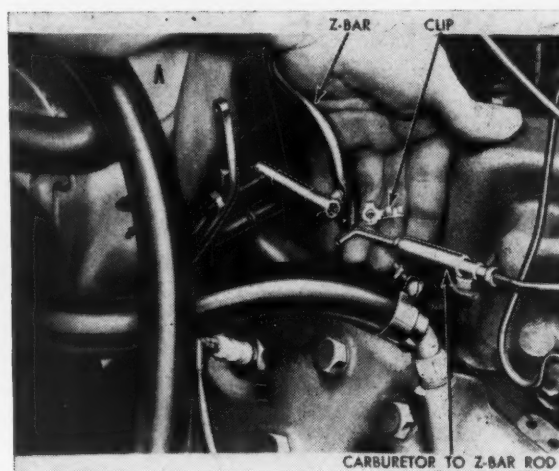


**Fig. 4.** Position of lever when shift is in drive position. Lengthen rod, turn sleeve one full turn.



**Fig. 5.** Before adjusting the throttle linkage, remove the clip at the carburetor Z-bar rod.

**Fig. 6.** Special tool to adjust Z-bar rod, the tool rests on the surface of the cylinder block.





## ... Fordomatic

stall test and an operating pressure test. To make a stall test, place the shift in drive range and reverse range. This will determine whether or not the bands or clutches are holding properly. When making this test never hold a throttle wide open more than five seconds at a time. Connect a tachometer to read on the high scale and make sure the engine is idling properly, 425 rpm. at normal operating temperature. Apply the parking brake and the service brake. Place the selector lever in the DR range and press the accelerator all the way to the floor. The engine speed should be 1400 to 1600 rpm. If engine speed is lower than 1400 rpm., the engine should be tuned and the test repeated. If the engine speed exceeds 1600 rpm., release the accelerator immediately because it indicates that the front band or clutch is slipping. Repeat the test with the selector lever in the reverse, that is the "R" position.

If slippage occurs, it is the rear band or rear clutch. Release the accelerator immediately. If the stall test shows proper band and clutch operation, proceed with the shift points test. If slippage is evident, make a pressure test, checking the operating temperature. Set the parking brake firmly and hoist the car until the rear wheels clear the floor. Remove the converter air intake, duct and screen. Remove the throttle linkage at the outer throttle lever. Re-

move the  $\frac{1}{4}$  inch pipe plug located near the throttle lever, then connect the pressure gage so that it can be read under the car (Fig. 11). Position the throttle lever protractor gage over the throttle shaft lever, locating the large elongated hole over the large shaft to the rear of the control lever (Fig. 12). Set the indicator on the gage to zero degree and lock in place with the knurled thumb screw. Hold the throttle lever against the stop which is up and insert the gage pin through the small elongated hole in the gage and the hole in the throttle lever (Fig. 12).

If the gage pin enters these two holes freely, the throttle mechanism has not been distorted and need not be replaced. Replace the throttle control mechanism if it is distorted. With the throttle lever still held against the stop, that is in the up position, lock the throttle lever to the gage by tightening the thumb screw. Remove the gage pin, then loosen the knurled screw and advance the lever fully down. The lever should travel 28 to 33 degrees. Set engine idling at 600 rpm., by adjusting the idle screw in the carburetor. Then with the engine idling, move the selector lever to the reverse position. Observe the pressure at zero degrees throttle lever position (Fig. 11). The pressure should be 60 to 80 lbs per sq. inch. From underneath the car, advance the throttle lever slowly and observe the angular reading at the point that the pressure begins to rise. The pressure should begin between 4 and 6 degrees throttle advance (Fig. 13). Continue to advance the

(Continued on page 178)

Fig. 7. Clevis pin removed from the transmission to the Z-bar rod before adjusting the throttle rod.

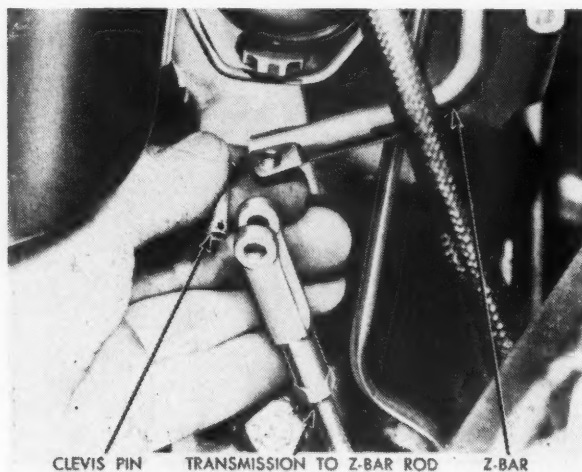
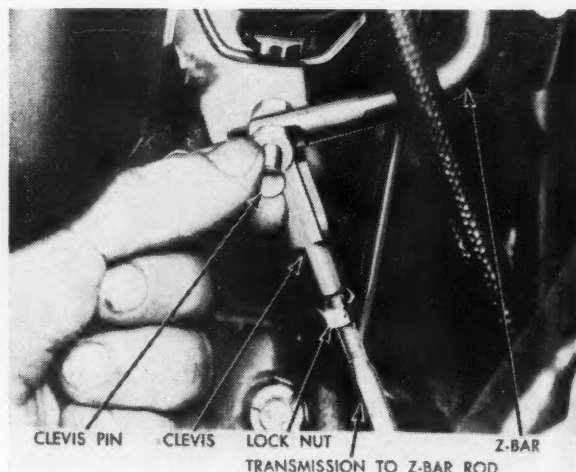


Fig. 8. Correct installation of clevis pin in Z-bar. Loosen the lock nut and adjust so the pin enters freely.





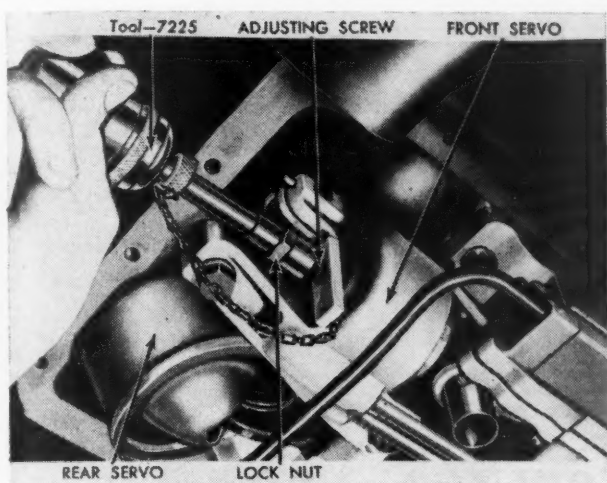


Fig. 9. Special tool in position for adjusting the front band. Insert between piston stem and adjusting screw.

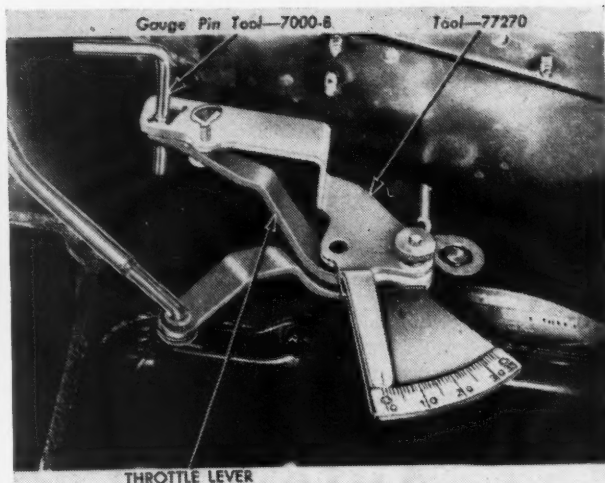


Fig. 12. Protractor gage in position over the throttle lever shaft locating the large elongated hole.

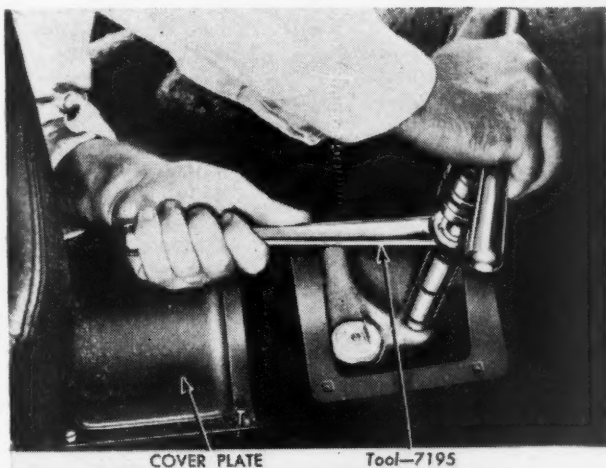


Fig. 10. Special tool in position for tightening the rear band adjusting screw. Done from inside the car.

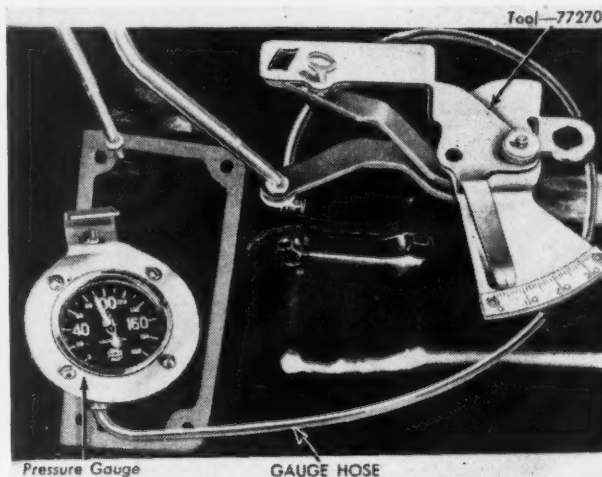
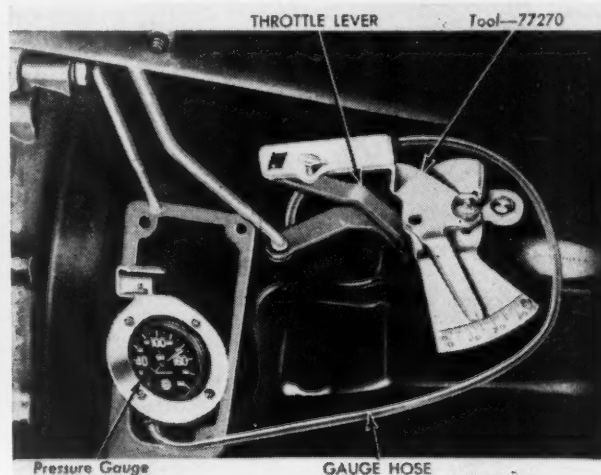
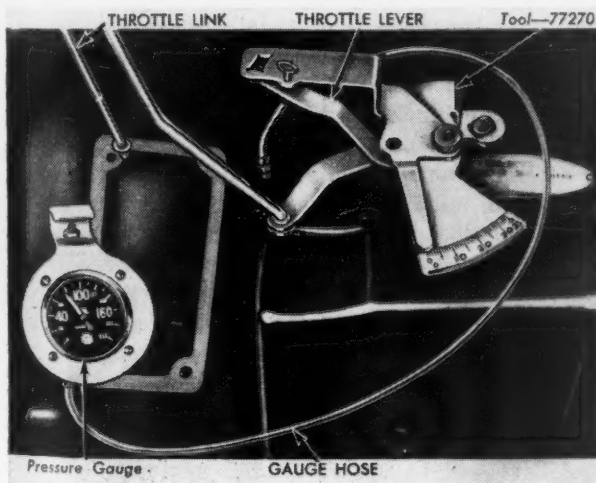


Fig. 13. Pressure gage attached to the transmission with the protractor showing pressure rise point.

Fig. 11. Special gage and tool in position for making pressure operating check. Done from underneath.

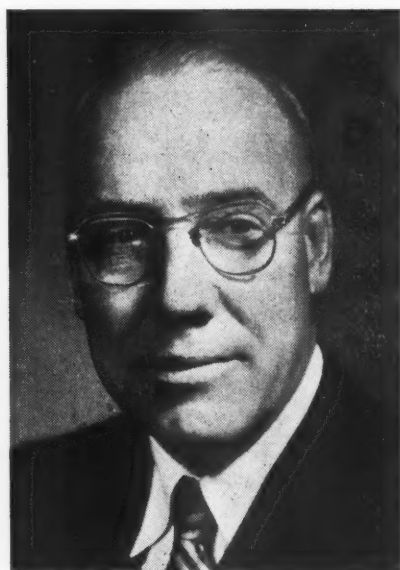






# 1952 A GOOD Automotive Service Year

**Although there will be some shortages, replacement parts in general will be available. Alert management policies must overcome a manpower shortage**

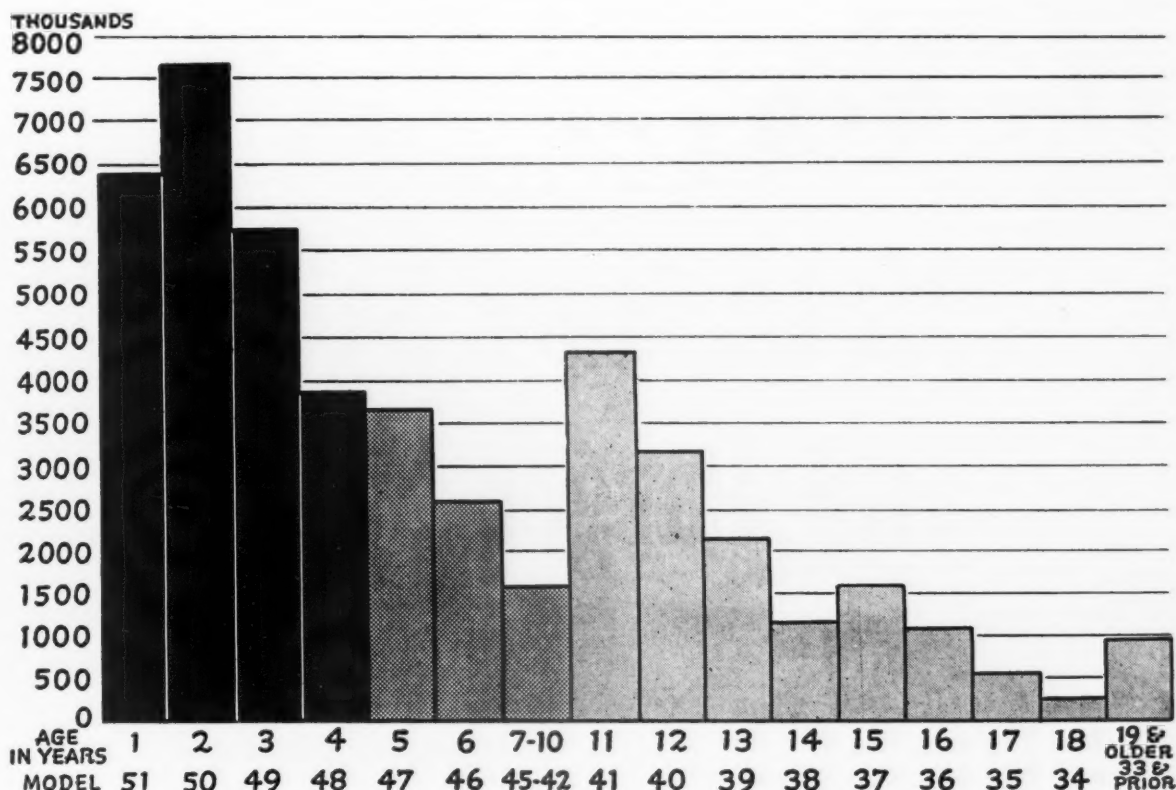


**M. E. St. Aubin**  
Director, General Motors Service Section

**T**HERE is a bright side to all engaging in the repair of motor vehicles in 1952. Never before has there been such an excellent opportunity to make the service department profitable. Let us examine the reason for this opportunity. It stems from three things. The government has assured the industry that materials needed to manufacture replacement parts will be available. The average annual mileage driven per vehicle in operation is at an all time high. The last point, but actually of primary importance, is the number of new or relatively new cars that will be included in the 1952 vehicle population.

In 1950 there were 16.5 million vehicles under four years old, but in 1952 this figure will increase to over 23.6 million. Since the dealer's greatest potential market for service sales is in this class, it is significant to note that in a two year period the market potential has increased 43 per cent. The money that will be spent by these 23.6 million owners for service is staggering. Using a conservative figure of 125 dollars a year per vehicle, it means that almost 3 billion dollars will be spent in 1952 by motor





Number of cars and trucks in operation in the United States, by age and model years as of 1 January 1952.

vehicle owners somewhere in the United States.

Each of these owners will be seeking prompt, quality service at an establishment where his business is appreciated and where he is confident that he is buying only what his vehicle needs. The car dealer or the independent operator who is able to deliver on this basis will have all of the permanent service business he can handle.

Sounds easy, does it not? However, there is nothing easy about it, in this year of 1952. To do such a job requires adequate space, competent manpower, excellent equipment and able top management. Every segment of the service department must be analyzed and trimmed for peak efficiency.

Start out with the space available. Is it being efficiently employed? It is so easy to excuse a mediocre service operation by saying that there is not enough space. In too many instances there is space to improve the operation, but it is not being efficiently used. This space problem does not lend itself to generalizations. It is an individual problem that can be solved only by individual analysis. The best way to do this is to mentally strip the service department to four

bare walls. Then, remembering that a productive stall is worth twenty-five to thirty-five dollars a day, move the equipment back into the building eliminating everything that does not pay its own way.

Competent manpower appears to be the most difficult problem of all. With one out of seven skilled mechanics already in the armed forces or defense plants and many more expected to leave, this will probably be the problem of the year. Any dealer or garage operator not personally concerned with this problem is already headed for trouble.

Much has been written on this subject, and it is certain that everyone with a management function is thinking about it. But more important than thinking about it is doing something about it.

First, Mr. Dealer, review and bring up to date your personnel policies and if you are losing mechanics get yourself a brand new set. You have probably found, by now, that the want-ad no longer brings men flocking to your door. Forget about the men you have lost and concentrate

(Continued on page 185)



# *The Key . . .*

## Make More Sales and Larger Sales



**D**ID you ever wonder why cafeterias put desserts at the head of the line? I asked a cafeteria owner why this was done and he bluntly replied, "Because we make a nice profit on desserts and by putting them up front a very large percentage of our customers put one on their tray. When they're hungry the desserts look good. If they didn't see the dessert until after they had put their regular meal on the tray, a lot of people wouldn't buy dessert."

Do you ever go shopping in a super market? I do, and if you do, I'll bet you put a lot of extra things in the pushcart that your wife wouldn't buy out of her housekeeping money. Even your wife buys a lot of items as she "shops" a super market that weren't on her list. And by the way, did you notice the candy gondola up near the cashier's booth? It's a last effort to get you to spend an extra nickel or more before you get out of the store. Incidentally, do you know that super markets have become the largest candy sellers in the United States?

Of course you realize that the displays in super markets are scientifically set up to induce *more impulse buying of the non-essential items*. The

aim of every smart super market operator is to increase the size of every sale and get the increase by having the customer buy the extra items that they didn't come in to buy.

The massage, the singe or extra sale in the barber shop; the socks that you bought when you went in for a shirt. These extra items that bring up the unit sale are the profit making items in practically every business.

Studies of the automotive industry by merchandising authorities have raised a number of questions that should be of more than passing interest. One question that is almost invariably asked is, "Why do you speak of an automotive industry?" "Why do you use such an exclusive and forbidding 'trade' vernacular?" "Why do you so consistently and persistently resist the



acceptance of the normal business sales philosophy?" "Why do you so persistently refuse to recognize the consumers of your products—the car owners of the United States—as 'customers'?"

The man in the shoe business runs a *store* and he knows that a *store* is a place in which to sell





**In the first of two articles, Mr. Goldman writes  
about sound selling — the kind of selling that  
assures your customer the most trouble-free,  
interruption-free kind of automobile operation**

*things.* He recognizes the man who comes into his store as a "customer." The thought of any good shoe salesman is, "What can I sell this customer?" Not, "What does he want to buy?"

The man who runs a food store, whether it be a small grocery store or large super market realizes that he has a store and he too knows *that*



a store is a place in which to sell things. His attitude toward the people who come into his store is the attitude of a salesman whose interest it is to make sales—more sales and larger sales.

Contrariwise, let's take a look at the normal procedure in the so-called *automotive industry*.

Actually it is the *automobile business* or the business of keeping automobiles running. Car owners don't want *automotive* service. They want *automobile* service. You should realize that *you're all in the automobile business*. Stop the ridiculous trade division that keeps your businesses in a perpetual state of confusion. Stop thinking of yourselves as tire dealers, car dealers, repair shops, filling stations, ignition specialists and what have you, and start running *automobile service stores* where people can buy



**by Martin E. Goldman**

Partner Aitkin-Kynett Co.

the things that are necessary to keep their cars properly running. . . . And more!

If you don't think it can be done, take a look at the automobile chain stores who do a sizable volume of business and make nice profits.

Sales people in *stores* recognize that their job is to make sales. That's what they are paid for and by the amount of their sales they are judged and paid. Is this true in your business?

A study of what happens when people drive  
(Continued on page 182)



# CHRYSLER Experiments



Chrysler's experimental sports car, with an Italian-designed body. Overall height is under six feet.

**W**HEN Chrysler Corporation held an on-the-record showing of its engineering developments in connection with display of its 1952 passenger cars in Detroit, November 8, it revealed for the first time many experimental projects which previously have been highly secret. The engineering display was one of the most complete and intelligently conceived demonstrations of automotive development engineering ever staged in the industry.

Of major interest were a new experimental sports car, known as the K310, and the 310 hp modified Firepower engine with which it will be powered. The car is low and wide with marked European styling which would be considered extreme by American standards. The body was designed by the Ghia Company in Turin, Italy, where it was mounted on a chassis shipped from Detroit. Aside from the high horsepower engine, the chassis is conventional

using the Chrysler Fluid-Torque drive. Wheel base is 125 in., height 59½ in., and overall length 220½ in. The engine develops its high horsepower on standard premium grade gasoline without supercharger.

Both valves and valve ports are larger than those used in the conventional 180 hp Firepower engine, which not only permits a larger intake of air fuel mixture, but gives the unexpected result of increasing compression ratio to 8.1 to 1 because of the larger valves. Camshaft changes also have been made to alter valve timing. In place of two dual carburetors the engine uses four single carburetors with 1½-in. throat, which are not only less expensive than the two dual units, but give better distribution of the mixture because of their proximity. Chrysler engineers also uncovered a power dividend through changes in the exhaust system. Separate exhaust vents are provided



# for the Future

**The 310 hp experimental sports car and the overhead valve V-8 engine for use in DeSoto were among the exhibits shown at the Chrysler Corp. engineering display**

**by Leonard Westrate**

for each cylinder with the vents leading into a single exhaust pipe for each bank of cylinders and leading directly back through individual mufflers to the tailpipe. An increase of 25 hp results from this change in the exhaust system. Also, air is not warmed at the intake as with the conventional Firepower engine, resulting in a greater volume of air being drawn into the cylinders.

On display also was the new overhead valve 276 cu. in. V-8 engine which will be used by DeSoto sometime early this year. It develops 160 hp at 4400 rpm and 250 lb. ft. torque at 2000 rpm. Bore is  $3\frac{5}{8}$  in. and stroke,  $3\frac{11}{32}$ . It has a 7 to 1 compression ratio and in design is fundamentally the same as the larger 180 hp Firepower engine. The engine has a dry weight of 630 lbs. Also shown was a horizontal 6-cylinder engine originally designed for a prospective light car. It is extremely compact in design with

all accessories except the starter located on top of the engine. It is reasonably certain, however, that Chrysler has no serious plans to produce it.

Of considerable interest were the automatic transmissions on display. Chrysler has twelve major transmission programs underway, but showed only three of them. Of most interest was the fully automatic unit consisting of torque converter and planetary gearing. This transmission is very similar to the one currently being used by Ford and Mercury and it is understood that it will be the next major step in the company's transmission program. It has a high torque ratio of 2.7, the highest of any passenger car automatic transmission currently in use. Particular emphasis has been put on reducing weight and the number of parts with the result that the unit is up to 56 lbs. lighter and has 42 per cent fewer major parts than competitive automatic transmissions. One reason for its light weight is use of an aluminum die cast converter housing. For the more immediate future Chrysler has developed another transmission similar to the Fluid-Torque drive but with oil for the converter supplied by the engine oil system rather than from an independent supply.

Another field of transmission exploration being carried on by Chrysler is the electromagnetic type. On display was a three-speed, fully-automatic power shifting unit involving a planetary gear system engaged by clutches activated by electromagnets. The unit provides full engine braking, has no creep at engine idling speeds, permits push starts, and involves no cooling problems, since no oil or other liquid is required for transmission of torque. It still is in the experimental stage, however, with no immediate plans for its adoption.

Several exhibits dealt with the intensive drive being made by Chrysler to find alternate materials to replace those that have become critically scarce and to reduce material costs through better design. A new carburetor has been developed that is considerably smaller than the current model, is simpler in design.

*(Continued on page 106)*





Tommy discovered that "reverse" methods  
of selling sometimes have to be used in  
order to win over prospective customers



Pop O'Neill



# Pop Talks Turkey to Tommy

**Y**OUNG Tommy Winters, taking advantage of a slack January day, was busy pushing crooked things straight and straight things crooked, dusting, cleaning and re-arranging the office of Pop O'Neill's repair shop. From the chaos some order was bound to come out. He was turning over in his mind the desirability of asking Pop for a display table for some of the faster selling items when the door opened and Pop O'Neill himself came in.

"Good morning, Pop," blurted Tommy in surprise, staring round-eyed at the Covert topcoat, the gay silk scarf and the pearl gray snap-brimmed hat. "Aren't you working today?"

"No," Pop smiled, "I forgot to tell you yesterday that there's a town finance meeting down at the bank. I didn't think I should go down in my coveralls."

"No, of course not," agreed Tommy, "I was just surprised to see you dressed like that."

Pop took the remark as an oblique compliment. "And what are you up to here?"

"Well," said Tommy, "I think it's about time that we cleaned up the place a bit. I've been keeping the grease room and the back of the shop pretty clean, but I never seem to find time to come out where most of our customers see the business."

"**A** GOOD idea," admitted Pop. "In this business we're apt to let things slide a bit too much; and after all we are in business to make sales."

"Well partly," said Tommy. "After all we're in business to fix cars. That's service."

"Sure," said Pop, "but it's hard to fix a car that needs a part unless you sell the part, sell service and sell the customer on the idea in the first place."

"No Tommy, never forget in our business selling is the key to success."

"But," Tommy remonstrated, "certainly good mechanical work is important too."

"Why of course," Pop agreed heartily, "what you call 'good mechanical work' is one of the

by Charles M. Kenyon,

Managing Editor

things we're selling. That is service. But if we sold only service for our income, the pay wouldn't be so good around here. A sizeable part of our income comes from the actual sale of parts and accessories, and anything we can do to increase the number of sales of parts or accessories, promptly increases our

income. You're a smart boy Tommy, and someday you'll probably have a shop of your own. Think for a minute. When you sell a customer a battery, for example, you make about five dollars on it. How long does it take to sell and install a battery?"

"Well not more than twenty minutes," said Tommy.

"**T**HAT's about right," Pop agreed. "Now on a labor charge of \$2.50 an hour, taking out what you'd have to pay your mechanic, how long would you have to work at a job to make the same amount?"

Tommy thought a minute on that and whistled. "Whew," he said, "I never thought of it just that way. It certainly pays to sell things all right doesn't it?"

Pop just nodded. "Never miss a chance for a sale, Son." Then he began to worry lest he had made Tommy a little too sales minded. "But don't forget service. Good service is what brings people back so that you can make more sales, and service keeps the bread buttered. Your overhead in a shop like this is pretty much constant and any money you can bring in is so much to the good." He turned as a car came driving up outside the door. "Well I'll be going along," Pop concluded. "I better get downtown."

And Tommy went out to meet the driver.

"Say, Son," said the driver, "is your boss around? I'd like to talk with him."

"Certainly, Sir," Tommy replied. "Oh Pop!"

"How-do-you-do," said the driver, getting out of his car as Pop came up to him. "My name is Maxwell, just moved in to town. People tell me

(Continued on page 112)



# PONTIAC

## *Announces*

# Dual-Range Hydra-Matic

Changes in valving and a new front pump provide Pontiac's Hydra-Matic with an additional range for improved performance

by Joseph Geschelin

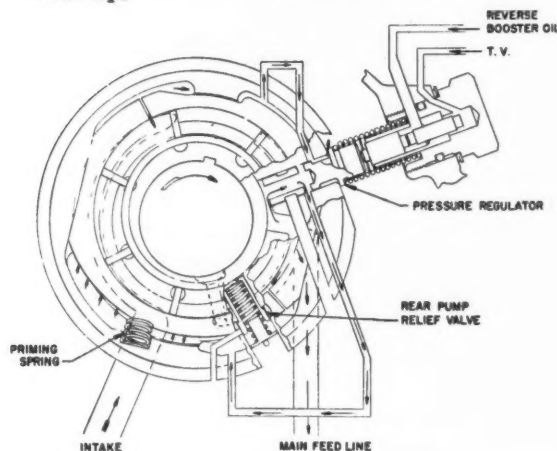
**I**N connection with the announcement of its 1952 models, Pontiac Motor Div., GMC, has released the details of the changes made in the Hydra-Matic transmission to provide the Dual-Range Hydra-Matic drive offered on the new models. Basically the drive is the same as before from the standpoint of major mechanical features. Conversion to dual-range performance, however, has required a new front pump, changes in the control valving, and re-design of front and rear servo units.

The new front pump, of vane type, consists of the pump body, cover, slide rotor, seven vanes, two guide rings, and priming spring. Designed to regulate its output according to the requirements of the hydraulic system, output is determined by the position of the slide. When the slide is up, the pump delivers maximum output; when centered, output is zero; when the slide is down, the pump acts as a relief valve for the rear pump.

The pump rotor turns with the engine and the priming spring serves to keep the slide in upward position at the start. A pressure regulator valve spring holds the valve in until the hydraulic system comes up to operating pressure. This allows the valve to meter oil to the lower control chamber and thus keeps the slide in the up position.

When optimum operating pressure is attained, the pressure regulator valve moves out against the combined spring and throttle pressure to the "out" position and thus permits pump pressure to be directed to the upper control chamber. At the same time pressure in the lower chamber is allowed to exhaust around the pressure regulator valve. These conditions force the slide to move down and thereby re-

1. The front pump slide in "up" position for maximum output. The priming spring holds the slide up.





duce pump output. As the slide moves down it uncovers a port, permitting oil pressure to flow to the fluid coupling and to supply lubrication to the assembly.

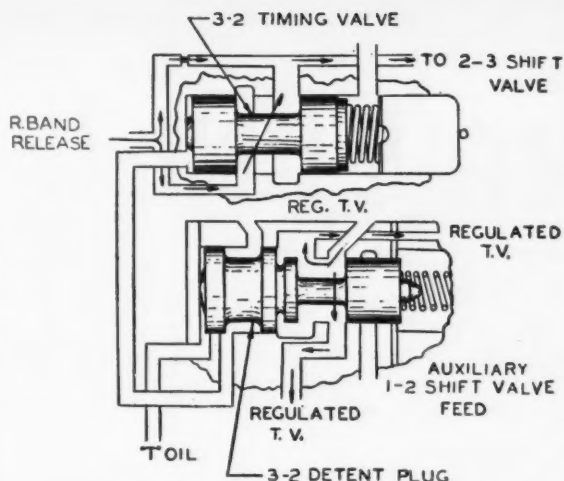
Since the front pump supplies the proper amount of oil to the system while it is running, the front pump relief valve has no effect on the operation of the pump. Its primary function is to relieve excessive output of the rear pump under special conditions such as encountered in towing the car when the front pump is inoperative.

Control valving has undergone some significant changes to provide dual-range operation. Full throttle downshift now is provided with set speed ranges regardless of the position of the selector lever. Most important change is the introduction of the 3-2 timing valve and the throttle regulator valve. The 3-2 timing valve is employed to delay application of the rear band on a 3-2 forced downshift, to effect smoother shifts. The throttle regulator valve is controlled both by throttle valve pressure and spring force.

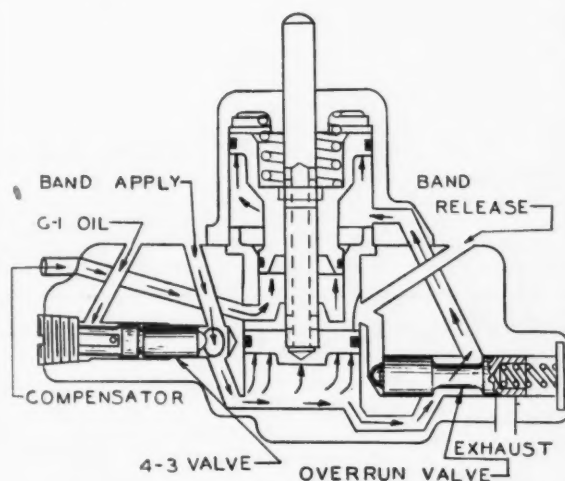
In operation, the 3-2 detent plug remains closed until the accelerator is depressed through the detent, the 3-2 timing valve being opened at this point. While the 3-2 detent plug remains closed, regulated throttle valve pressure flows through it to act on regulator plugs and shifter valves to assist in delaying the shift. Because the 3-2 timing valve is open, main line pressure flows freely during 2-3 upshifts and 3-2 downshifts.

However, when the accelerator is depressed through the detent with the car moving slowly enough to obtain a 3-2 shift, main line pressure

(Continued on page 192)

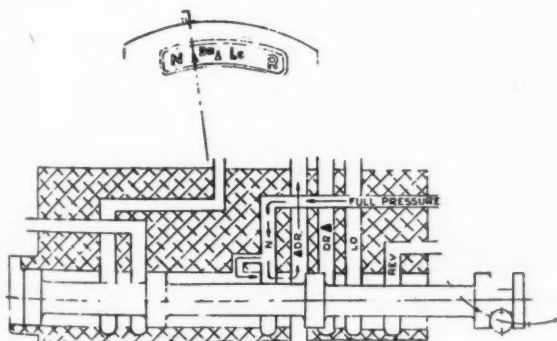


3. Until the accelerator is depressed through the detent, the 3-2 detent plug remains closed while the timing valve is open.



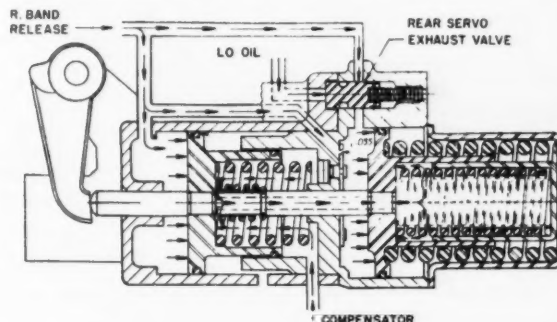
4. Front servo control, with the overrun control valve positioned by the spring in first, third, and reverse.

2. The control valve shown in position for the high-range "Dr" position of the selector lever.



CONTROL VALVE  
L.H. DRIVE POSITION

5. Details of the rear servo unit which has been redesigned to allow faster rear band application in "Lo" range.





# Here's How It All Happened

A thumb-nail history of the progress in design by the automobile industry in America

1900—Automatic spark advance (Packard, Oldsmobile).  
Speedometer (Jones).  
Front mounted powerplant (Columbia).  
Four-cylinder air-cooled engine (Franklin).  
Wheel steering (superseding tiller steering).

1901—Shaft drive to rear axle.  
Four-cylinder, water-cooled, longitudinal front mounted engine (Locomobile).

1904—Side entrance tonneau body.  
Shock absorbers.  
Pressure lubrication for engines (Pierce-Arrow).

1905—Magnetos (Remy Bros.).  
Folding tops.  
Annular ball bearings (Hess-Bright).  
Universal rim for clincher or straight side tires (Goodyear).  
Sleeve valve engine (Knight).  
Six cylinder engine (National).  
Ignition locks.

1906—Integral cylinder and crankcase construction (Northern).  
Direct high-tension magnetos (Bosch).  
Drop frame with single drop at rear (Peerless).  
Spring bumper.  
Vibrator-type horn.



1907—Taxicabs.  
Demountable rims (Firestone).  
Magnetic type speedometer (Warner).

1908—Motor-driven horn (Klaxon).  
Silent (toothed) chains for front drives (Knight).  
Left-hand steering (Ford).

1910—Four-door bodies.

1911—Electric starter (Delco, on Cadillac).  
Transversely split detachable rims.  
Non-metallic gears for camshaft drives.

1912—Engine temperature indicator (Boyce Motometer).  
Spiral bevel final drive (Packard).

1913—Wire wheels of triple-laced type.



Self-engaging starter drive (Bendix).

1914—Eight-cylinder, V-type engine (Cadillac).  
Vacuum fuel feed (Stewart-Warner).  
Thermostatic water circulation control (Cadillac).

1915—Aluminum alloy pistons.  
Twelve-cylinder engine (Packard).  
Lanchester torsional vibration damper.

1917—Wood wheels with steel felloes.  
Steel disk wheels (Budd).

1921—Hydraulic brakes (Duesenberg).  
Overhead camshaft engines (Wills-Ste. Claire and Duesenberg).

1923—Balloon tires.  
High-pressure chassis lubrication (Alemite).  
Lacquer finish for automobiles (Duco).  
Ethyl fluid.  
Air cleaners.

1924—Filter for crankcase oil (Puro-lator).  
Vibration damper in clutch (Franklin).

1926—Hypoid gear drive (Packard).  
Safety glass, wired type (Stutz).

Centralized chassis lubrication system (Bowen, on Chandler).

1927—Chromium plating.

1928—Mechanical fuel pump (AC).  
Transmission gear synchronizing device (Cadillac).

1929—Laminated safety glass (Duplate, on Cadillac).  
Front wheel drive (Cord, Ruxton).

1930—Sixteen-cylinder engine (Cadillac).  
Oil cooler (Buick, Hupmobile).  
Freewheeling device (Warner Gear, on Studebaker).  
Dampers for valve springs (Studebaker).  
Automatic hydraulic tappet clearance adjusters (Cadillac).

1931—Cast-iron brake drums (Chrysler).  
Engine suspension on rubber in tension (Chrysler).  
Automatic choke (Stromberg on Oldsmobile).  
Automatic manifold heat control (Stromberg on Oldsmobile).



Floating inlet for engine oil pump (Willys).  
Automatic spark timing by intake manifold vacuum (Delco-Remy on Plymouth).  
Hard valve-seat inserts (Chrysler).  
Steel-back precision bearings (Studebaker).  
Aluminum cylinder heads (Graham).

1932—Shackle bolts with threaded bearing surface (Cadillac, Buick).  
Cast-iron camshafts (Hudson).  
*(Continued on page 196)*



# NEW NOTES

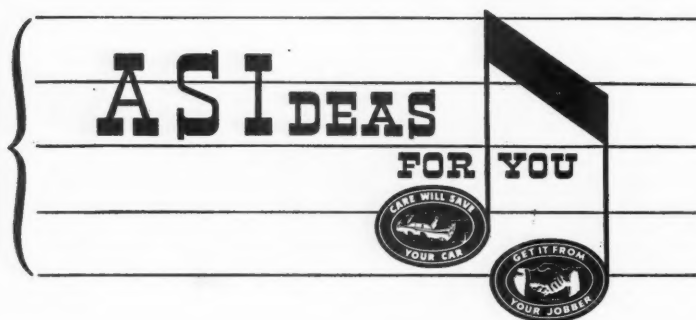
## ON ASIDEAS

FOR YOU



The Automotive Service Industry is a bread and butter business which has grown strong and competitive over this last half century. The end product of the ASI is basic and essential . . . it is, simply, good service to the motoring public. Good service means the ability to do good work—to analyze customers' needs—to make selling suggestions. It requires the installation of the sound repair parts and the use of proper tools and adequate equipment. Good service provides hundreds of opportunities every week to sell, to establish good will and to work profitably. On the following pages we present scores of ASIdeas that can lead you to a prosperous 1952. We invite you to study them and to seek more information on as many as you wish by using the pre-paid postcard on page 73. Remember, a car is as good as the service it gets.

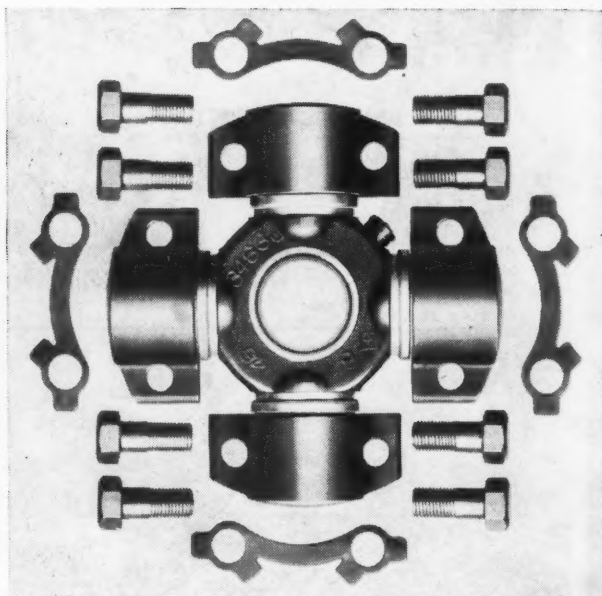




For further information use postcard on page 73

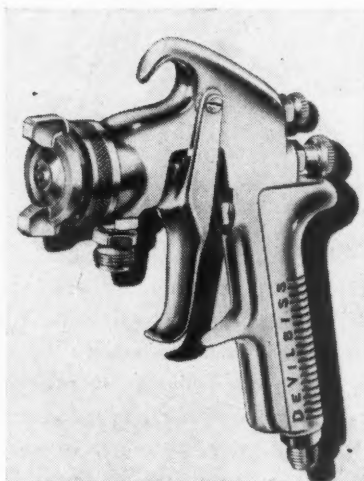
## ▼ 2. Truck U. J.

**Mechanics Universal Joint**  
Division of Borg-Warner Corp:  
This firm offers universal joints for trucks which, because they are 34 percent lighter in weight than units of like torque capacity, enable trucks to carry up to 28 pounds extra payload. Another feature claimed for the Mechanics truck joints is their 20 minute servicing advantage. They can be removed and replaced—on the road—in 20 minutes—with a wrench and hammer—without disturbing balance, the firm reports.



## ▲ 1. Flexible Hose

**Thermoid Company:** Thermoid has recently placed on the market its new universal Redi-Curv line of radiator hoses. It features specially tapered ends for easier installation and has a coiled wire which is specially designed and encased in a compounded tube which withstands anti-freezes and deterioration from radiator chemicals. The manufacturer states that Redi-Curv will not pull, strain or break connections since its coils absorb shocks.



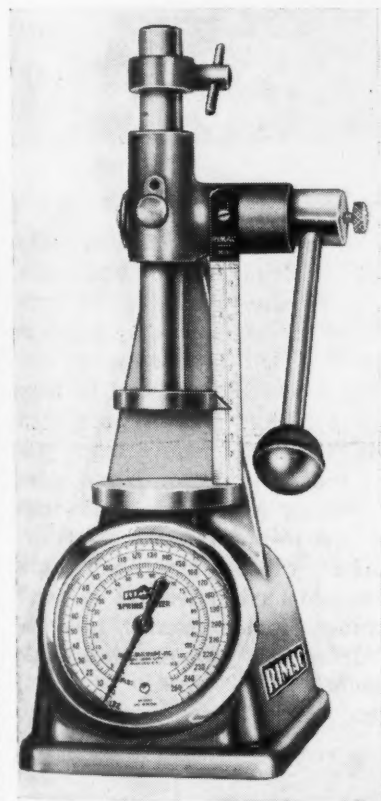
## ◀ 3. Spray Gun

**DeVilbiss Company:** Designed for finishing, painting, and refinishing jobs with all types of materials including hot lacquer and synthetics, the DeVilbiss JGA spray painting gun weighs only one pound and six ounces. The spray pattern is adjusted from round to full fan by knurled knobs at the top of the grip. The heavy straight knurling on the knobs enables the operator to make adjustments even while wearing a glove.



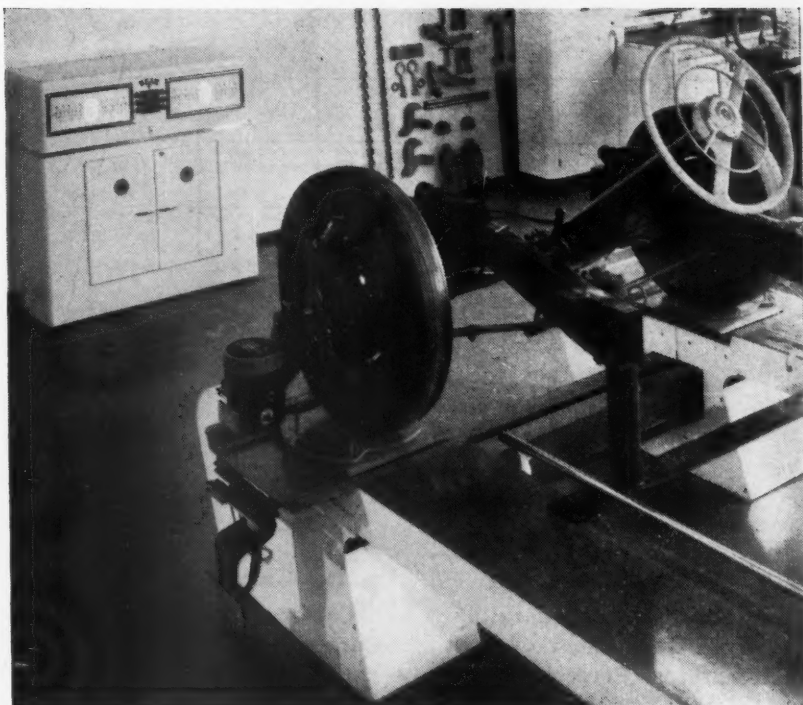
#### ▼ 4. Spring Tester

Rinck-McIlwaine Inc.: The Rimac Spring Tester, for valve springs or clutch springs now has a larger dial base,  $4\frac{1}{2}$  inches in diameter. A smooth working rack and pinion together with a more rugged indicator is claimed to improve accuracy. The dial reads in pound units to 250. It will take any spring up to 2 inches in diameter and  $4\frac{1}{2}$  in. long.



#### ► 5. Exchange Shoes

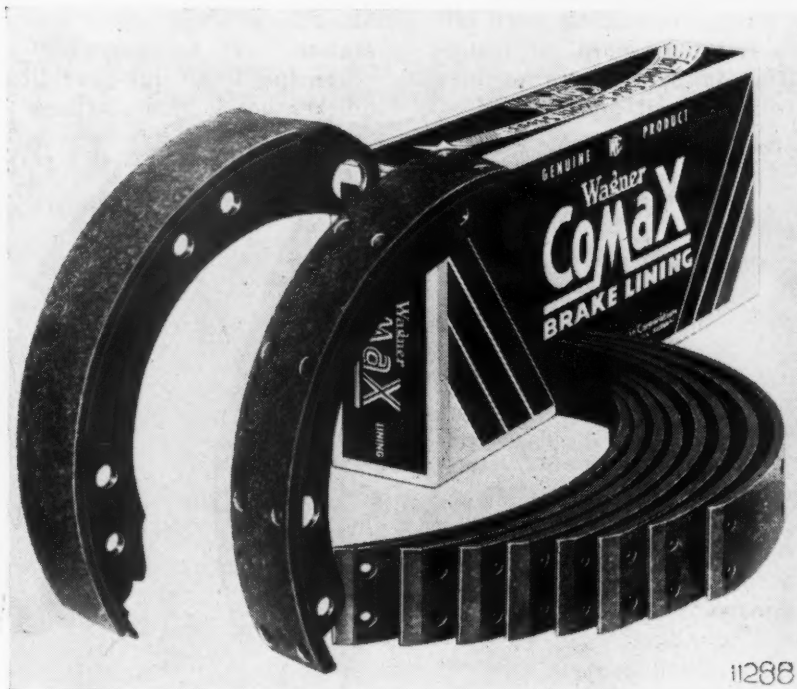
Wagner Electric Corporation: An exchange brake shoe program is available through Wagner's network of service branches. Brake shoes are packaged in axle sets of four shoes with Wagner CoMax Brake Lining, either "bonded-on" or "riveted-on," ready for installation. Exchange sets are available for popular cars and Ford, Chevrolet and Dodge light trucks.



#### ▲ 6. Alignment Units

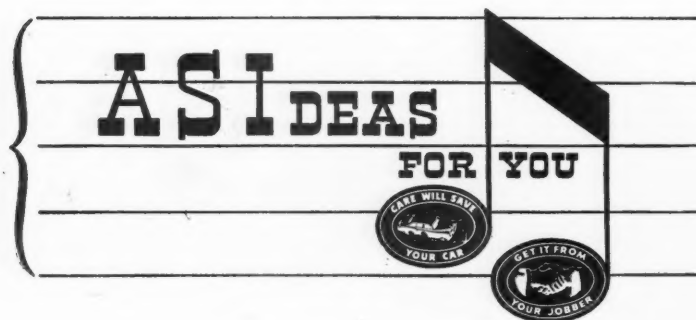
Bear Mfg. Company: New front end checking units with "Television Action" view screen are fitted directly on the spindle or used with a rim clamp. Both mechanical and electrical

readings can be taken at one time or each independently of the other. Degree readings are magnified and transferred electrically to a view screen, regardless of the position of the screen or the distance of the point of the screen from work.



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For further information use postcard on page 73

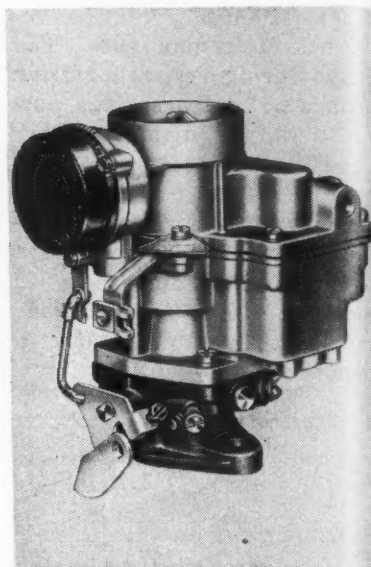
### ▼ 7. Piston Ring Set

**Perfect Circle Corporation:** Called 2-IN-1 because of their dual features, Perfect Circle's new piston ring sets feature two chrome rings per cylinder. Wearing surfaces of the top compression ring and the bottom oil ring are plated with solid chrome.

The new sets are actually two ring sets in one package. Each set has two different types of pressure springs—normal pressure if the rings are to be used in rebored or slightly worn cylinders; hi-pressure for installation in badly worn engines are known oil pumpers.

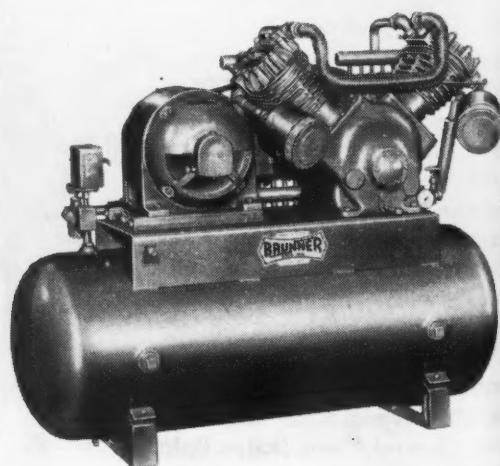
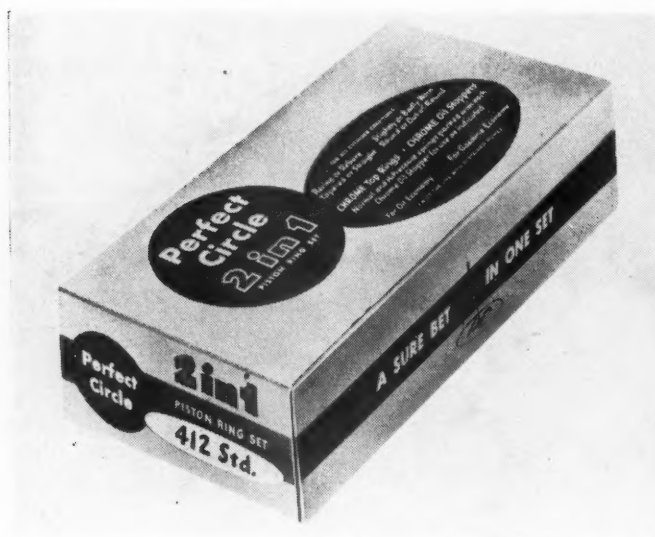
### ► 8. Carburetors

**Carter Carburetor Corp.:** Carter's YF climatic control carburetors for Chevrolet will be featured in Carter's program for the coming year. These carburetors in addition to automatic choke, contain the same features as the manually controlled YF type carburetors. Among these are (1) designed to compensate automatically for added road load requirements; (2) vacuum and mechanically controlled accelerating pump for smoother acceleration; (3) anti-percolator—curbs fuel loss while providing quicker hot engine starting.



### ▼ 9. Compressor

**Brunner Mfg. Company:** The 15 hp. Brunner Air Compressor outfits are available in both two stages and single stage models. On the two stage outfit the intercooler is said to have 40 per cent greater area than on those commonly employed. A special provision is made for cleaning tubes on the intercooler to increase the efficiency. Also, these compressors are said to have a feature of noise and vibration control, thus reducing this problem to a minimum.







#### ► 10. Shock Absorber

**The Gabriel Company:** The new Hydr-O-Shox feature "ring control" design, which is said to provide a firm, uniform ride control at high, low and intermediate speeds, and at all driving temperatures. With the O-Ring Seal, no oil can blow past the piston, but instead must pass through pre-calibrated valves. All the oil is sealed in to maintain control. Gabriel Hydr-O-Shox use an over-sized working cylinder to provide a big cushion to absorb jars and jolts, the firm states.



#### ► 11. Cover Material

**E. W. Twitchell, Inc.:** A plastic-coated seat cover material, recently introduced by this firm, is made of an extremely fine yarn, tightly woven. The manufacturer points out that this fabric is light in weight, long-wearing, and easy to cut and sew. Trade-named Plasti-fine Sunsare, this material is said to resist heat, and is coated with a plastic which gives it a lustrous sheen. There is no static electricity problem with this material, Twitchell reports, and there is a wide variety of colors and patterns to choose from.

#### ◄ 12. Spread Ram

**The Blackhawk Mfg. Co.:** Here's a new hydraulic "Spred" Ram for automobile work, designed to speed reconditioning of smashed fenders, cowls and panels. The SA-7, with a complete built-in hydraulic ram, has a full spread of 11¾ in. and is 19¼ in. long. With the arms closed the tip is 1 in. thick. This new "Spred" Ram can be used with either the Blackhawk 10-Ton Pump or the Bantam 2-Ton Pump, depending upon the size Spee-D-Coupler used, the manufacturer states.

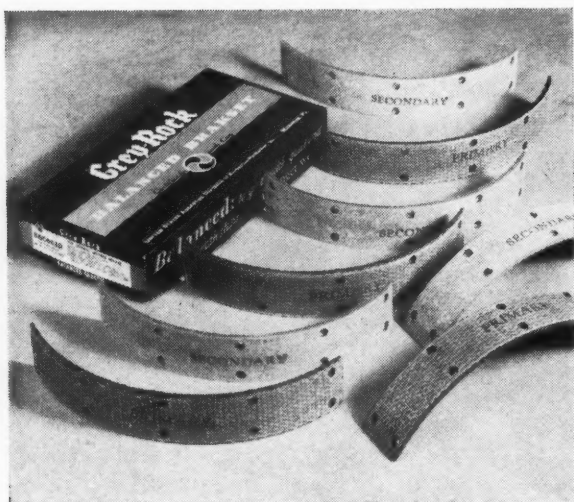




For further information use postcard on page 73

### ▼ 15. Jack Kit

Hein Werner Corp.: Hein Werner announces the 4-SUA "Push and Pull" Hydraulic Jack Kit. It is claimed that it will save up to 50% time on body, fender and frame repair jobs. The kit includes Model H-800 remote control 4 ton "Push and Pull" Jack, No. 7-A assortment of 30 essential attachments, and B-4 steel storage and carrying case. The jack pushes and pulls with one ram.



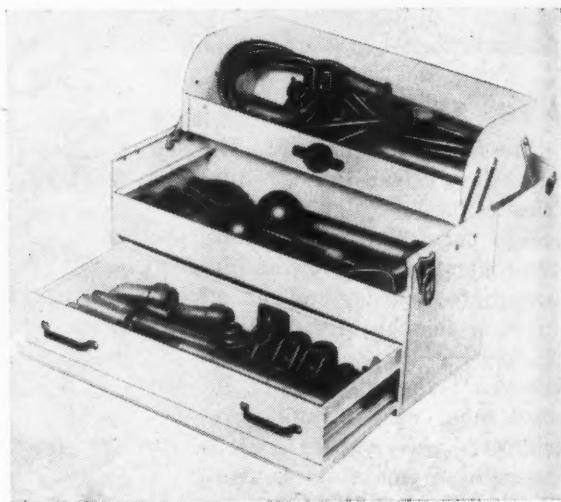
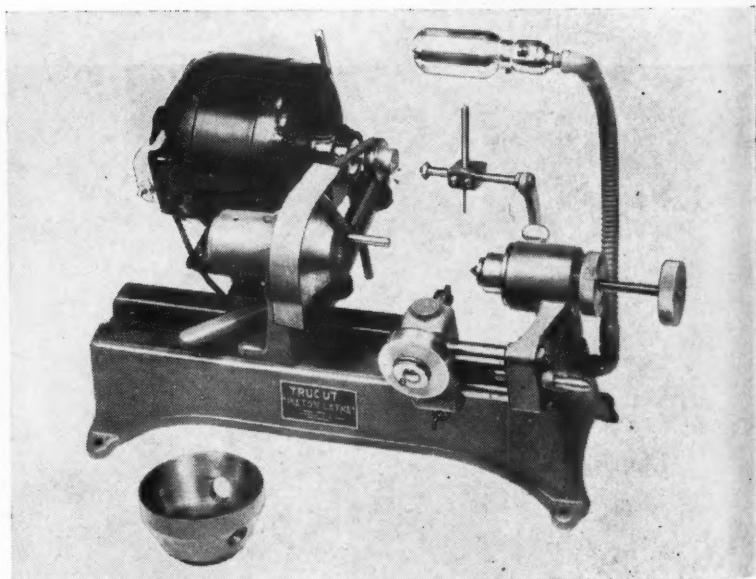
### ▲ 13. Brake Sets

Grey Rock Div. of Raybestos-Manhattan, Inc.: Balanced Brakesets for passenger cars, Balanced Trucksets for light and medium trucks for riveting or for bonding are available.

Balanced Trucksets are provided for all popular makes and models of light and medium trucks using linings up to 1/2 in. thick.

### ▶ 14. Piston Lathe

Frank N. Wood Co.: The Trucut Piston Lathe is a precision machine which makes it possible to clean grooves, drill centers, and regroove for spacers or oversize rings.





### ► 16. Engine Heater

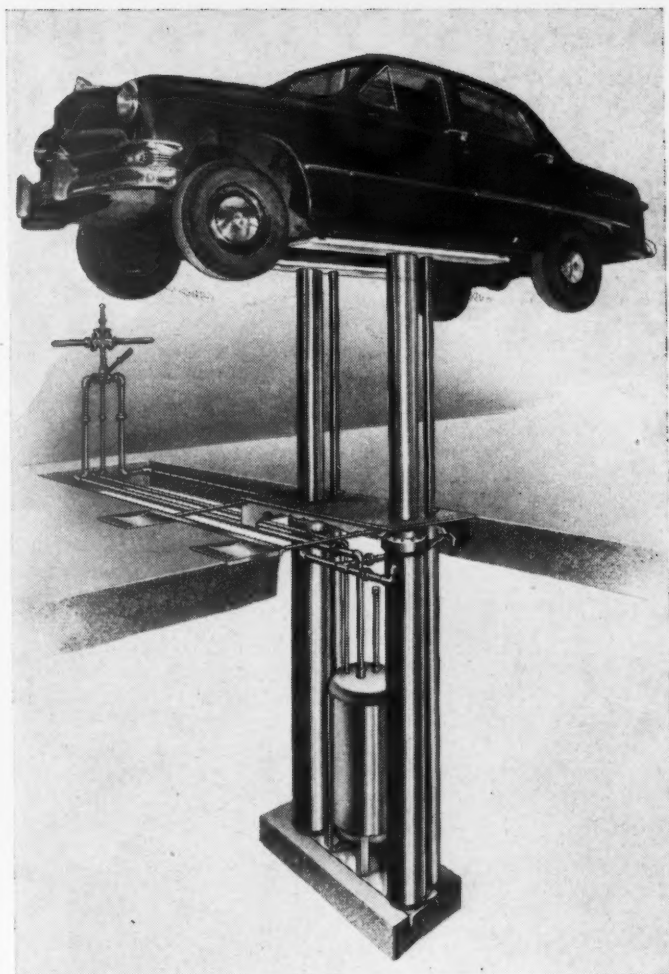
**General Electric's Industrial Heating Div.:** An extension to G.E.'s line of Calrod engine heaters, devices to aid quick starting cars in cold weather, has been announced. The new model was developed specifically for installation in Chevrolet engines. The heater aids starting in cold weather by pre-warming the cooling fluid surrounding the engine block.

### ► 17. 4 Ton Hoist

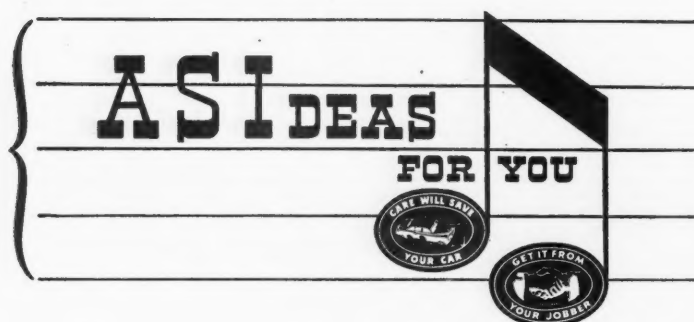
**Globe Hoist Co.: The Globe F-27 Frame-Kontakt Hoist** offers accessibility for efficient removal or servicing of underside parts. Automobiles are supported by two flat contacting members, each attached to a self-synchronized, full-hydraulic power cylinder. Additional features include simplified spotting, one valve control, visible safety bar, unrestricted use of floor area.

### ▼ 18. Shop Intercom System

**Executone, Inc.:** Executone's inter-communication, voice paging and signal light systems are designed as an integral part of an automobile dealer's service control operations. Among the features cited for the electronic Executone is the "Hold Annunciator," with which a mechanic presses a button momentarily to call the service dispatcher. The call is announced at the dispatcher unit by a chime and signal light. The mechanic is able to return to his work. Then, when the dispatcher answers the call, the mechanic can answer "remotely" from across the room.





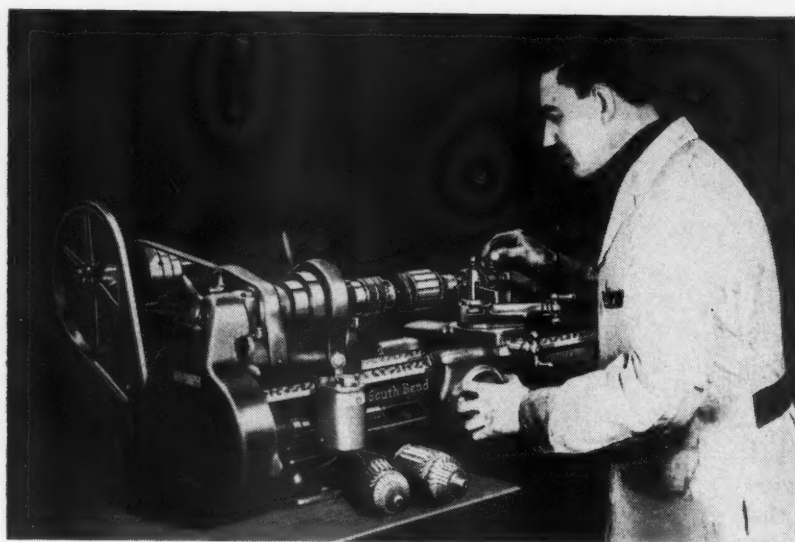


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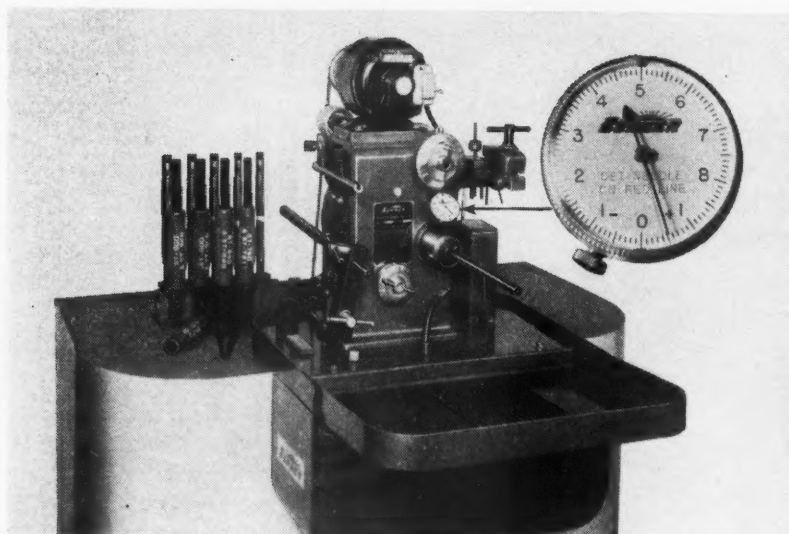
### ▲ 19. Battery Charger

**Fox Products Company:** A new addition to the Fox line of battery chargers is the multi-purpose, 6-12 volt portable for the servicing of trucks and buses. This new unit, standing 15 in. high and weighing 38½ lbs., is a true portable. It fast-charges either a 6 or a 12-volt battery with a maximum of 90 amperes.



### ◀ 20. Lathe Kit

**South Bend Lathe Works:** The South Bend Special Armature Lathe Kit is designed for use on the 9 in. x 3 ft. South Bend Lathe, for truing and undercutting all sizes and types of automotive armature commutators. Both truing and undercutting are done with one set-up.



### ◀ 21. Honing Machine

**Sunnen Products Company:** St. Louis, announces a new model Wet Honing Machine with a Honing Dial. The honing dial shows the honing progress and tells when to gage the hole. The machine handles pistons, rods, spindle bodies, and other parts with hole diameters from .480 in. to 2.625 in.



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HERE'S HOW TO GET

Free Information

LISTED here are the new products which appeared in the ASIdeas section of Chilton's Motor Age, along with the key number for each product.

Fill in your name, address and other information on the free postcard below. Circle the numbers of the new products which interest you. Just tear out the card and drop it in the mail.

- 1. Flexible Hose
- 2. Truck U. J.
- 3. Spray Gun
- 4. Spring Tester
- 5. Exchange Shoes
- 6. Alignment Units
- 7. Piston Ring Set
- 8. Carburetors
- 9. Compressor
- 10. Shocks
- 11. Cover Material
- 12. Spread Ram
- 13. Brake Sets
- 14. Piston Lathe
- 15. Jack Kit
- 16. Engine Heater
- 17. 4-Ton Hoist
- 18. Shop Intercom System
- 19. Battery Chargers
- 20. Lathe Kit
- 21. Honing Machine
- 22. Battery Chargers
- 23. Thread Restorers
- 24. Drum Lathe
- 25. Tube Patches
- 26. Primer Surfacers
- 27. Carburetor Manuals
- 28. Fan Belts
- 29. Air Horn
- 30. Impact Wrench
- 31. Drying Booth
- 32. Color Matcher
- 33. Lock Wrench
- 34. Auto Altimeter
- 35. Welding Outfit
- 36. Leak Detector
- 37. Bond Tester

- 38. Shoe Stripper
- 39. Repair Kit
- 40. Impact Wrench
- 41. Lube Hose
- 42. Waterproofing
- 43. Electric Drills
- 44. Journal Grinder
- 45. Trouble Light
- 46. Tubeless Tire
- 47. Paint Matcher
- 48. Truck Trestle
- 49. Governors
- 50. Rebushing Kit
- 51. Crankcase Ventilator
- 52. Portable Welder
- 53. Spray Gun
- 54. Seat Covers
- 55. Timing Light
- 56. Bug Deflector
- 57. Air Water Units
- 58. Lock Wrench
- 59. Fitting Stock
- 60. Hog Ring Cutters
- 61. Paint Additive
- 62. Merchandiser
- 63. Vent Equipment

- 64. Impact Tools
- 65. Exhaust System
- 66. Front End Parts
- 67. Battery
- 68. Fire Extinguisher
- 69. Grille Guards
- 70. Air Brake Data
- 71. Carburetor Cleaner
- 72. Ignition Parts
- 73. Torque Wrench
- 74. Twin Post Lift
- 75. Shoe Grinder
- 76. Tire Booklet
- 77. One End Lift
- 78. Corrosion Eliminator
- 79. Service Jack
- 80. Heaters
- 81. Brake Booklet
- 82. Service Jack
- 83. Hole Saw
- 84. Valve Seat
- 85. Financing Plan
- 86. Welding Outfit
- 87. Tool Set
- 88. Brake Lining
- 89. Coil Spring Sets

- 90. Stop Light
- 91. Parts Cleaner
- 92. Valve Rotator
- 93. Piston Rings
- 94. Rubber Dressing
- 95. Spark Plugs
- 96. Valve Seat Grinder
- 97. Inspection Units
- 98. One End Lift
- 99. Color Matcher
- 100. Shock Absorbers
- 101. Electrical Tape
- 102. Piston Ring
- 103. Pre-Paint Chemical
- 104. Voltage Regulator
- 105. Bonding Program
- 106. Cigar Lighter
- 107. Hp. Compressor
- 108. Paint Matcher
- 109. Radiator Cleaner
- 110. Puller Sets
- 111. Acid Core Solder
- 112. Compressor
- 113. Cleaning Kit
- 114. Chrome Protector
- 115. Shock Absorbers

Frank P. Tighe, EDITOR  
MOTOR AGE  
Chestnut & 56th Sts., Philadelphia 39, Pa.

Please send me further information on the New Products, the code numbers of which I have circled below.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23	24	25	26	27	28
29	30	31	32	33	34	35	36	37	38	39	40	41	42
43	44	45	46	47	48	49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96	97	98
99	100	101	102	103	104	105	106	107	108	109	110	111	112
113	114	115											

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Your Name .....Your Title .....

Your Company .....

Car Dealers .....Wholesalers .....Independent .....

Address .....(STREET & NO.) .....(CITY) .....(ZONE) .....(STATE)



# New Notes on ASIdeas

## 22. Battery Chargers

**Triple-A Specialty Company:** Designed for fast, slow and triple charging, the Silver Beauty Model 120 battery charger is said to completely charge the average battery in two and one-half hours. It is said to deliver enough amperes to turn over the average motor within five minutes. An automatic taper feature decreases the charge rate as the battery nears the capacity. In addition to fast charging the 120 will charge up to four batteries overnight and will triple charge one battery or bank of twenty to ten batteries connected in parallel. It is rated at 20 amperes, measures  $8\frac{1}{4} \times 6\frac{1}{4} \times 7\frac{1}{4}$  inches, and weighs 16 lbs.

## 23. Thread Restorers

**Buckingham Mfg. Co., Inc.:** New thread restorers, now made in several sizes, clean and restore flattened, distorted or badly rusted right or left-hand threads on bolts or studs up to 4 in. diameter.

## 24. Drum Lathes

**Dixie Machine Tool:** The Dixie Brake Drum Lathes are now

equipped with the new Dixie PerflexSurfacer, a new process that is said to eliminate break-in and save brake lining wear. According to the manufacturer tests indicate that no wear-in is necessary on a PerflexSurfacer drum. Since the uniform rate of wear was evident during the first hour of operation.

## 25. Tube Patches

**The Buxbaum Company:** A new addition to this firm's plastic and rubber automotive products is the Buxco "Dual-Duty" tube patch, engineered for use as either a hot or cold repair. Its high strength ratio adapts the "Dual Duty" for either passenger or truck tube repair, and is claimed to be equally satisfactory for use with natural rubber or butyl tubes.

## 26. Primer-Surfacers

**Martin-Senour:** No. 6252 Light Gray, No. 6255 Dark Gray, and No. 6256 Red Oxide lacquer primer-surfacers form the Martin-Senour team of primer-surfacers for use over bare metal or old paint finishes. They are said to provide

excellent adhesion and filling qualities, speed of drying, and ease of sanding to a perfect feather edge. Nos. 6255 and 6256 are slightly faster drying than No. 6252, and for that reason, sand somewhat easier, particularly for those refinishers who dry sand.

## 27. Carburetor Manuals

**Marvel-Schebler Products Division, Borg Warner Corp.:** Two new manuals have been published by this firm, describing and illustrating their universal single downdraft carburetor which is used as replacement on Chevrolets 1932 through 1948 as well as universal application on several other models; and the Ford and Mercury replacement carburetor for all Ford V-8's from 1934 through 1948 and all Mercury's from 1939 through 1948. Subjects covered in the manuals include installation and adjustment, float system, idle system, part throttle or economy system, full throttle or power system, automatic economizer, venturi cluster, accelerating pump system and choke system.

## 28. Fan Belts

**The Gates Rubber Co.:** For those cars requiring this space conservation, Gates belt research engineers have developed the "HC" (High Capacity) fan belt which is just half as wide as a regular fan belt, therefore requires less space and permits the use of narrower pulleys. They are made from new kinds of synthetic cords, new man-made rubber, and manufactured through new techniques, Gates reports.

(Continued on page 75)

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Philadelphia 39, Pa.

### BUSINESS REPLY CARD

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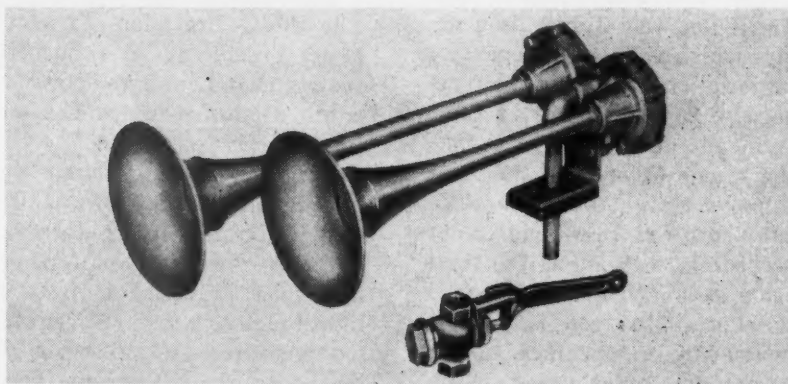
### ◀ 31. Drying Booth

Kellogg Div. of American Brake Shoe Co.: With the Auto-Bake Infra-Red Oven, autos can be painted and dried in the same booth. This operation is made possible by this nine-foot extension, separated from the painting compartment. It houses the Auto-Bake Infra-Red Oven while the car is being sprayed. When the painting is done the fumes are drawn out of the booth by a large exhaust fan located in the ceiling. The operator then simply folds back the doors and presses the button which moves the Auto-Bake out of the extension.

### ▶ 29. Air Horn

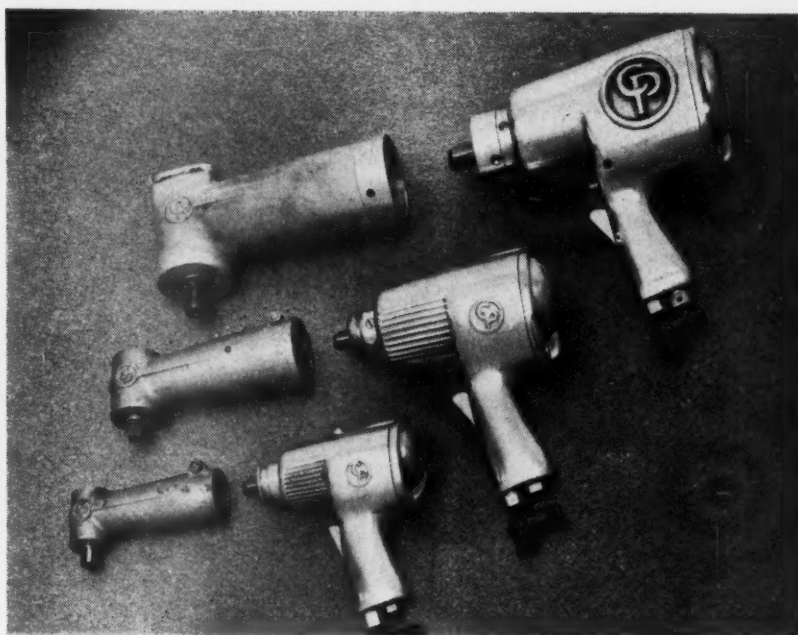
Sparton Automotive Div. of the Sparks-Withington Co.: The civilian counterpart of the Sparton air horn used on U. S. military vehicles has both diaphragm and housing built to specifications of the Army Ordnance Department. This weatherproof horn will operate on 10-100 pounds of air pressure and will not affect operation of the vehicle's air brakes.

Claimed to have minimum air consumption and maximum sound output, the volume of this horn is sufficient for any emergency coupled with a tone not too startling.

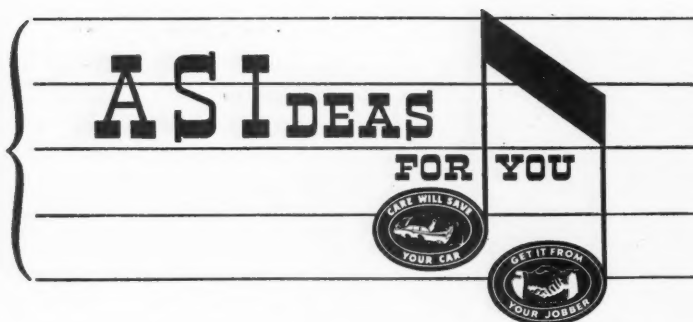


### ▶ 30. Impact Wrench

Chicago Pneumatic Tool Co.: Impact wrenches which are air-operated, and on which the impact action is fully controllable, are being featured by this firm. All models have detachable angle heads to make awkward-angle jobs easy to reach. Chicago Pneumatic Air Impact Wrenches can be equipped with accessories to ream, drill, tap, drive screws; operate stud drivers, sleeve pullers, gear pullers and masonry drills.







For further information use postcard on page 73

### ▼ 32. Color Matcher

The Sherwin-Williams Co.: The Color Key Junior is a device which enables the operator to mix with "light-beam" accuracy any quantity of color from a pint to a gallon. Like the senior Color Key, this unit employs a light beam and Lucite depth rod. In mixing colors according to formulas the light beam says "When!" By means of a scale the rod is pre-adjusted to a specified depth within the paint can for the first color. Separate adjustment is made for each additional base color in the mixture.

### ► 33. Lock Wrench

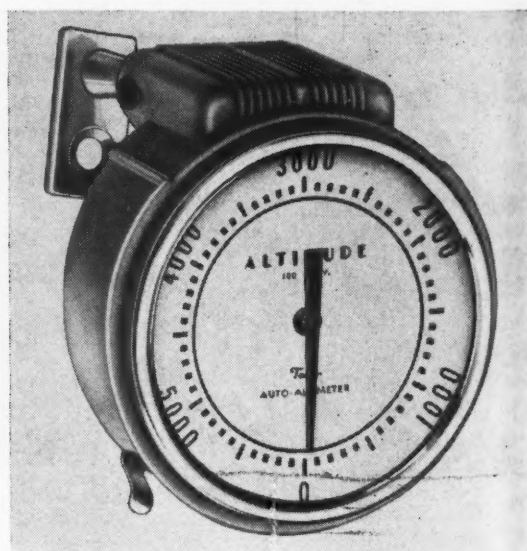
BMC Manufacturing Corp.: The BMC Precision Pressure Lock Wrench has a calibrated scale and indicator to show the width of jaw opening. The adjusting nut is operated by the thumb and finger holding the tool. It has parallel jaws which remain parallel at any opening. Gripping power ranges, depending upon adjustment, from a light touch to a grip of over one ton pressure. It can be set so that once the jaws grip, they will not let go until released, making the tool useful on a variety of jobs.



### ▼ 34. Auto-Altimeter

Taylor Instrument Companies: The Taylor Auto-Altimeter is attached to the windshield to tell the passengers and driver the altitude at which they are traveling. If the instrument is set at zero and the car is put up at night, the pointer will tell in the morning whether the atmospheric pressure has varied and so indicate whether changes.

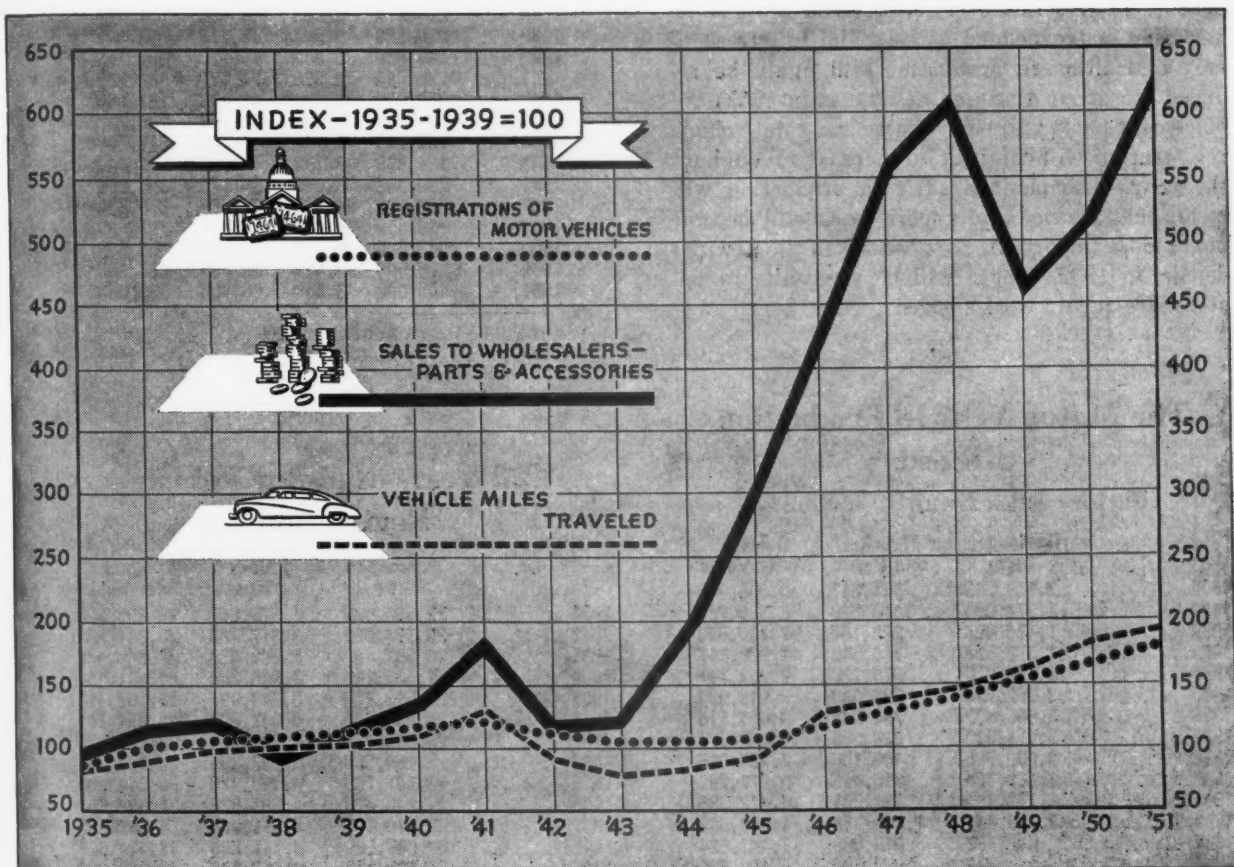
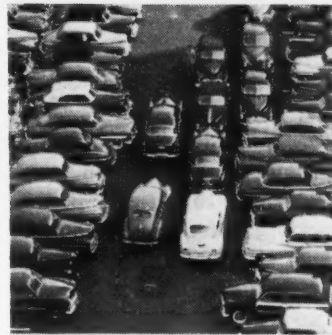
(Continued on page 100)





# Business Guide for 1952

by Charles M. Kenyon  
and Marcus Ainsworth



**P**PRICE increases, reflected in the sharp upturn of manufacturers' parts and accessories sales, placed the dollar volume of such sales at an all-time high in 1951. These figures are based on excise taxes and

are not to be taken as jobbers' sales; they are manufacturers' sales to jobbers. Indications are that, despite shortages in some basic metals, the general parts and accessories prospect for 1952 is good.



# Total Mileage and Registration Figures

**A** YEAR ago the announced intention of the government was to hold down automobile production by approximately 30 per cent. Although the reduction was not quite this severe (a drop of 15 per cent in total motor vehicle production and of about 20 per cent in passenger cars), it did cut total motor vehicle production to 6,806,000. This action slowed the rate of increase in vehicle registrations also. The increase in total motor vehicle registrations was 3,153,957 and of passenger cars 2,617,566. In 1951, motor vehicles drove over 500 billion miles, an increase of 35 billion miles over 1950. The automobile has been acknowledged as essential to our economy and although production will again be reduced (to about 4 million new units in 1952) replacement parts will be available and total vehicle registration will continue to increase throughout the year. The planned shift in production will mean that service and repair work will become much more important, particularly to the new car dealer, in 1952. There will be less units to sell and more repair work needed.

## Total Vehicle Miles Traveled in U. S.\*

(All figures shown in millions)

	Passenger Cars	Buses	Trucks	Total Miles
1936.....	208,654	2,367	41,107	252,128
1937.....	223,467	2,492	44,151	270,110
1938.....	224,174	2,508	44,495	271,177
1939.....	235,629	2,554	47,219	285,402
1940.....	249,559	2,657	49,927	302,143
1941.....	275,685	2,820	54,891	333,396
1942.....	218,239	3,130	45,727	267,096
1943.....	161,788	3,365	41,594	206,747
1944.....	167,073	3,799	41,708	211,580
1945.....	199,599	3,758	45,987	249,344
1946.....	280,457	4,052	56,146	340,655
1947.....	300,282	4,251	66,089	370,622
1948.....	319,459	4,283	73,847	397,589
1949.....	343,500	4,125	77,400	425,000
1950.....	375,500	3,925	85,600	465,000
1951†....	400,000	3,850	96,800	500,650

\* Public Roads Administration.

† Estimated by Motor Age.

## The Motor Vehicle Production Record

(Factory Sales from U. S. Plants)

	Passenger Cars	Trucks and Buses	Total Motor Vehicles
1930.....	2,784,745	571,241	3,355,986
1931.....	1,973,090	416,648	2,389,738
1932.....	1,135,491	235,187	1,370,678
1933.....	1,573,512	346,545	1,920,057
1934.....	2,177,919	575,192	2,753,111
1935.....	3,252,244	694,690	3,946,934
1936.....	3,669,528	784,587	4,454,115
1937.....	3,915,889	893,085	4,808,974
1938.....	2,000,985	488,100	2,489,085
1939.....	2,866,796	710,496	3,577,292
1940.....	3,717,385	754,901	4,472,286
1941.....	3,779,682	1,060,820	4,840,502
1942.....	222,862	818,662	1,041,524
1943.....	139	699,689	699,828
1944.....	610	737,524	738,134
1945.....	69,532	655,683	725,215
1946.....	2,148,699	940,866	3,089,565
1947.....	3,558,178	1,239,443	4,797,621
1948.....	3,909,270	1,376,274	5,285,544
1949.....	5,119,466	1,134,185	6,253,651
1950.....	6,665,863	1,337,182	8,003,045
1951 (Est.)....	5,373,000	1,433,000	6,806,000

## 20 Years of Motor Vehicle Registrations

	Passenger Cars	Trucks and Buses	Total Motor Vehicles
1931.....	22,420,629	3,573,267	25,993,896
1932.....	20,994,092	3,347,730	24,341,822
1933.....	20,557,493	3,292,439	23,849,932
1934.....	21,535,199	3,346,268	24,881,467
1935.....	22,513,715	3,644,997	26,158,712
1936.....	24,044,432	4,047,277	28,091,709
1937.....	25,356,786	4,292,484	29,649,270
1938.....	25,264,589	4,283,395	29,547,984
1939.....	26,147,798	4,496,770	30,644,568
1940.....	27,240,475	4,683,376	31,923,851
1941.....	29,240,417	4,911,990	34,152,407
1942.....	27,683,529	4,741,298	32,424,827
1943.....	25,841,215	4,657,882	30,499,097
1944.....	25,298,639	4,611,966	29,910,605
1945.....	25,398,824	5,025,233	30,424,057
1946.....	27,834,543	5,858,813	33,693,356
1947.....	30,511,368	6,785,816	37,297,184
1948.....	33,009,515	7,468,712	40,478,227
1949.....	35,962,469	7,914,263	43,876,732
1950.....	39,952,969	8,318,721	48,271,690
1951 (Est.)....	42,570,535	8,855,112	51,425,647



# Continue Upward

## Business Guide for 1952



### Forecast of 1951 Motor Vehicle Registrations

*As of the End of the 1951 Registration Year*

STATE	Passenger Cars <sup>(1)</sup>		Trucks		Buses		Total Motor Vehicles		Per Cent Increase
	1951	1950	1951	1950	1951	1950	1951	1950	
Alabama	500,978	464,510	180,132	151,700	1,825	1,816	682,935	618,026	7.27
Arizona	220,195	204,935	59,500	58,737	700	682	280,395	264,354	6.07
Arkansas	336,825	290,957	118,186	140,388	3,750	3,695	458,761	435,040	5.45
California <sup>(2)</sup>	4,241,000	3,948,260	527,000	473,897	(3)	(3)	4,768,000	4,422,157	7.82
Colorado	455,000	422,595	130,000	131,299	(3)	(3)	585,000	553,894	5.61
Connecticut	645,000	583,170	94,500	87,174	1,723	2,798	741,223	673,142	10.11
Delaware	93,000	85,944	22,000	20,909	(3)	(3)	115,000	106,853	7.62
District of Columbia	174,700	164,811	19,500	18,372	2,000	1,964	196,200	185,147	5.97
Florida	885,746	805,001	185,500	175,240	6,000	5,938	1,077,246	986,179	9.23
Georgia	731,000	691,457	204,000	192,845	4,300	3,593	939,300	887,895	5.79
Idaho	204,000	195,520	75,800	71,405	(3)	(3)	279,800	266,925	4.82
Illinois	2,429,600	2,281,932	365,000	321,738	9,000	6,352	2,803,600	2,610,022	7.42
Indiana	1,252,198	1,173,627	215,724	244,258	6,775	7,710	1,474,697	1,425,595	3.44
Iowa	904,400	878,606	189,000	181,748	(3)	(3)	1,093,400	1,060,354	3.12
Kansas	672,000	648,852	224,000	203,722	(3)	(3)	896,000	852,574	5.09
Kentucky	645,000	604,244	176,800	167,342	2,000	1,906	823,800	773,492	6.50
Louisiana	558,500	552,787	160,000	151,749	3,800	3,647	722,300	708,183	1.46
Maine	216,734	210,434	64,500	64,195	475	394	281,709	275,023	2.43
Maryland	622,350	570,922	104,800	95,888	4,300	3,943	731,450	670,753	9.05
Massachusetts	1,170,000	1,100,674	170,000	165,850	6,300	5,431	1,346,300	1,271,955	5.84
Michigan	2,261,348	2,110,636	316,667	294,825	(3)	(3)	2,578,015	2,405,461	7.17
Minnesota	997,000	944,272	202,200	188,990	3,420	3,245	1,202,620	1,136,507	5.82
Mississippi	325,000	306,064	148,000	139,442	4,500	4,124	477,500	449,630	6.20
Missouri	1,039,000	990,264	285,000	261,607	(3)	(3)	1,324,000	1,251,871	5.76
Montana	190,964	178,643	87,000	78,210	(3)	(3)	277,964	256,853	8.22
Nebraska	465,500	442,046	126,500	123,933	1,100	1,077	593,100	567,056	4.59
Nevada	62,000	58,773	19,500	16,023	(3)	(3)	81,500	74,796	8.96
New Hampshire	143,000	136,547	39,500	39,347	(3)	(3)	182,500	175,894	3.75
New Jersey	1,416,821	1,344,521	217,189	208,798	9,807	10,440	1,643,817	1,563,759	5.12
New Mexico	176,975	169,481	61,800	60,123	1,010	1,040 <sup>(1)</sup>	239,785	230,644	3.96
New York	3,480,000	3,239,825	504,000	471,872	16,000	15,673	4,000,000	3,727,370	7.31
North Carolina	939,430	830,925	218,614	201,881	8,300	8,226	1,166,344	1,041,032	12.04
North Dakota	197,669	191,206	86,983	81,967	101	101	284,753	273,274	4.20
Ohio	2,558,000	2,366,114	381,000	327,359	(3)	3,900	2,939,000	2,697,373	8.96
Oklahoma	647,100	618,073	213,000	201,160	1,750	1,698	861,850	820,931	4.98
Oregon	580,000	545,959	158,437	130,979	1,935	1,252	740,372	678,190	9.17
Pennsylvania	2,689,785	2,575,219	530,000	508,927	13,000	12,684 <sup>(1)</sup>	3,232,785	3,096,830	4.39
Rhode Island	224,184	215,718	33,160	30,828	608	603	257,952	247,149	4.37
South Carolina	482,102	445,962	119,732	109,367	4,550	4,507	606,384	559,836	8.31
South Dakota	221,910	215,084	75,481	70,888	320	309	297,711	286,281	3.99
Tennessee	690,246	639,325	186,726	163,946	.....	.....	876,972	803,271	9.17
Texas	2,406,702	2,316,279	651,153	613,485	5,148	5,248	3,063,003	2,935,012	4.36
Utah	216,000	196,614	47,000	46,117	630	453	263,630	243,184	8.41
Vermont	107,000	103,050	15,000	14,911	157	159	122,157	118,120	3.42
Virginia	815,140	762,300	176,490	165,429	2,595	2,463	994,225	930,192	6.88
Washington	779,457	745,724	163,500	155,708	2,000	1,747	944,957	903,179	4.63
West Virginia	376,400	324,516	115,000	101,361	1,500	1,337	492,900	427,214	15.37
Wisconsin	1,011,300	957,414	233,830	221,368	2,600	2,618	1,247,730	1,181,400	5.61
Wyoming	112,276	103,177	42,729	38,641	.....	.....	155,005	141,818	9.30
Total	42,570,535	39,952,969	8,721,133	8,185,948	133,979	132,773	51,425,647	48,271,690	6.53

(1) Includes taxicabs. (2) Data do not include 128,224 passenger cars and 7,912 trucks non-resident registrations for 1950 and 131,000 passenger cars and 8,200 trucks for 1951. (3) Included with trucks.



# Year Shows More Jobbers, Dealers, Independents

**Automotive Wholesalers, Dealers and Repair Shops, by States\***  
**With Number of Motor Vehicles per Outlet**

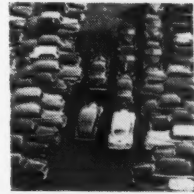
STATE	Total Motor Vehicle Regis- trations	WHOLESALEERS		DEALERS		INDEPENDENT REPAIR SHOPS		ALL RETAIL OUTLETS	
		Number of Whole- salers	Motor Vehicles per Whole- saler	Car and Truck Dealers	Motor Vehicles per Car and Truck Dealer	Inde- pendent Repair Shops	Motor Vehicles per Repair Shop	All Retail Outlets	Motor Vehicles per Retail Outlet
Alabama.....	662,935	143	4,635	549	1,207	457	1,450	1,006	658
Arizona.....	280,395	77	3,641	251	1,117	565	496	816	343
Arkansas.....	458,761	130	3,528	597	768	519	883	1,116	411
California.....	4,768,000	771	6,184	2,358	2,022	7,053	676	9,411	506
Colorado.....	585,000	103	5,679	542	1,079	832	703	1,374	425
Connecticut.....	741,223	117	6,335	580	1,277	1,026	722	1,606	461
Delaware.....	115,000	22	5,227	110	1,045	282	407	392	293
Dist. of Columbia.....	196,200	24	8,175	88	2,229	218	900	306	641
Florida.....	1,077,246	189	5,699	710	1,517	1,297	830	2,007	536
Georgia.....	939,300	164	5,727	779	1,205	574	1,636	1,353	694
Idaho.....	279,800	70	3,997	384	728	478	585	862	324
Illinois.....	2,803,600	487	5,756	2,796	1,002	4,253	659	7,049	397
Indiana.....	1,474,697	250	5,898	1,431	1,030	1,898	776	3,329	442
Iowa.....	1,093,400	222	4,925	1,518	720	1,483	737	3,001	364
Kansas.....	896,000	163	5,496	1,134	790	1,093	819	2,227	402
Kentucky.....	823,800	150	5,492	826	997	595	1,384	1,421	579
Louisiana.....	722,300	121	5,969	526	1,373	529	1,365	1,055	684
Maine.....	281,709	50	5,634	385	731	580	485	965	291
Maryland.....	731,450	101	7,242	505	1,448	1,121	652	1,626	449
Massachusetts.....	1,346,300	213	6,320	1,189	1,132	1,691	796	2,880	467
Michigan.....	2,578,015	327	7,883	1,839	1,401	3,017	854	4,856	530
Minnesota.....	1,202,620	158	7,611	1,629	738	1,930	623	3,559	337
Mississippi.....	477,500	108	4,421	546	874	220	2,170	766	623
Missouri.....	1,324,000	259	5,111	1,153	1,148	1,439	920	2,592	510
Montana.....	277,964	63	4,412	462	601	419	663	881	215
Nebraska.....	593,100	124	4,783	776	764	877	676	1,653	358
Nevada.....	81,500	17	4,794	110	740	169	482	279	292
New Hampshire.....	182,500	27	6,759	241	757	299	610	540	337
New Jersey.....	1,643,817	222	7,404	1,168	1,407	2,874	571	4,042	406
New Mexico.....	239,785	61	3,930	288	832	492	487	780	307
New York.....	4,000,000	547	7,312	2,889	1,384	7,060	566	9,949	402
North Carolina.....	1,166,344	205	5,689	918	1,270	775	1,504	1,693	688
North Dakota.....	284,753	48	5,932	523	544	430	662	953	298
Ohio.....	2,939,000	466	6,306	2,273	1,293	3,057	961	5,330	551
Oklahoma.....	861,850	201	4,287	962	895	1,093	788	2,055	419
Oregon.....	740,372	149	4,968	550	1,346	1,317	562	1,867	396
Pennsylvania.....	3,232,785	541	5,975	3,158	1,023	5,869	550	9,027	358
Rhode Island.....	257,952	39	6,614	191	1,350	450	573	641	402
South Carolina.....	606,384	89	6,813	426	1,423	306	1,981	732	828
South Dakota.....	297,711	45	6,615	480	620	392	759	872	341
Tennessee.....	876,972	147	5,965	748	1,172	736	1,191	1,484	590
Texas.....	3,063,003	552	5,548	2,839	1,078	3,649	839	6,488	472
Utah.....	263,630	74	3,562	279	944	519	507	798	330
Vermont.....	122,157	23	5,311	202	604	266	459	468	261
Virginia.....	994,225	130	7,647	878	1,132	910	1,092	1,788	556
Washington.....	944,957	199	4,748	800	1,181	1,919	492	2,719	347
West Virginia.....	492,900	99	4,978	637	773	713	691	1,350	365
Wisconsin.....	1,247,730	196	6,365	1,541	809	1,462	853	3,003	415
Wyoming.....	155,005	33	4,697	256	605	202	767	458	338
Total.....	51,425,647	8,716	5,900	46,020	1,117	69,405	740	115,425	445

\* Trade List Department—Chilton Company.



# Business Guide for 1952

## and More Cars Per Retail Outlet



### Factory Sales of Repair Parts and Accessories 1933-1951

	Wholesale Value
1933.....	\$234,461,000
1934.....	304,642,000
1935.....	378,323,000
1936.....	448,527,000
1937.....	464,619,000
1938.....	348,068,000
1939.....	454,673,000
1940.....	553,004,000
1941.....	718,212,000
1942.....	471,957,000
1943.....	527,710,000
1944.....	816,724,000
1945.....	1,284,926,000
1946.....	1,752,918,000
1947.....	2,353,523,000
1948.....	2,552,872,000
1949.....	1,895,050,000
1950.....	2,139,734,000
1951*	2,400,000,000

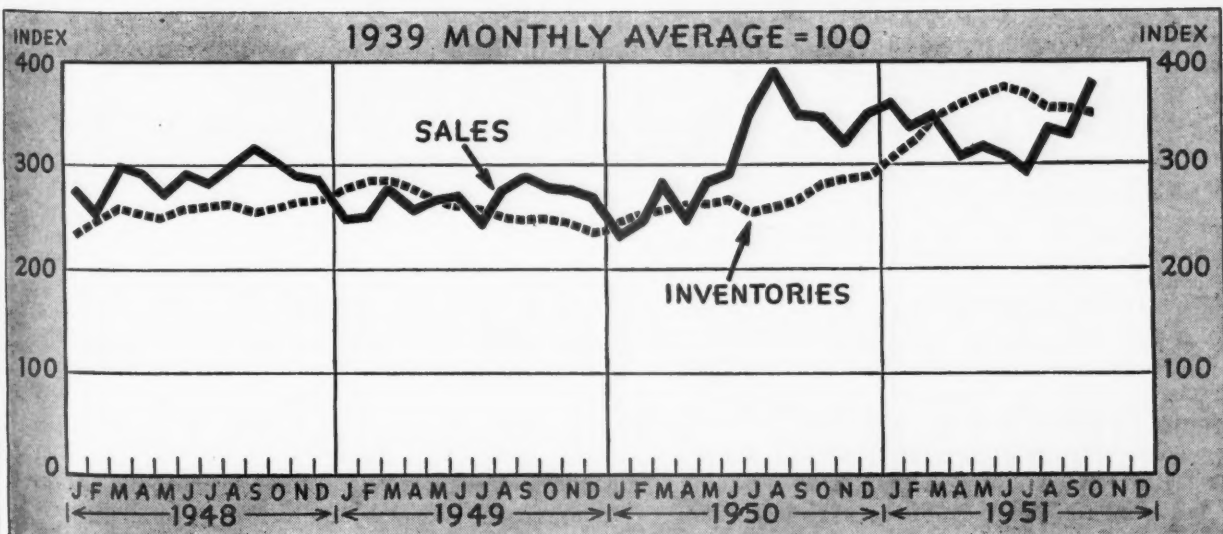
\* Partly estimated.

The above data are based on Federal Excise tax collections. The excise tax does not apply on parts and accessories exported, so these values apply for domestic sales only. Prior to July 1, 1944, sales to U. S. government were not subject to the tax, but have been since that date.

THE wholesale value of parts and accessories based on factory sales figures increased by over 250 million dollars in the past year to reach a near record high of \$2,400,000,000. Part of the increase is the result of price increases, but unit sales in the automotive service industry have remained extremely high. The fears of a war economy are ever present in the mind of the purchaser of parts and accessories and equipment and coupled with the greatest present consumer demand the world has ever known for automotive material this made 1951 another great buyers' year. There is little indication that 1952 will alter this pattern. Although there were more motorists to buy the goods, there were also more shops to service the motorists. Nevertheless, shop operators and jobbers averaged more customers than they did a year ago. Twenty-nine more jobbing establishments opened their doors; 984 new car dealers began to sell cars; and 904 additional independent repair shops began to do business. In 1950 there were 423 motor vehicles per retail outlet (of any type) and in 1951 this had risen to an average of 445 motor vehicles, an increase of 24 units.

### Trends in Jobbers Sales and Inventories

(Based on Reports Submitted to the Bureau of The Census)





By Arthur H. Nellen, Jr.  
Service Editor



In this plan damaged cars are photographed on the street and owners contacted by tracing license numbers.

## Quality Body and Paint Shop

1234 Main St., Hometown, U. S. A.

January 22, 1952

Mr. John C. Jones  
40 No. Maple Ave.,  
Hometown, U.S.A.

Dear Mr. Jones:

We took the attached snapshot of the dented right front fender on your Plymouth the other day. Since the rest of your car is in such good condition, we feel that you probably just haven't gotten around to having the damage repaired.

If you can leave your car with us for the day on Friday, we can straighten and refinish it for you for \$10.00. If Friday is inconvenient, we'd be glad to hear from you, letting us know when you can come in.

Very truly yours,  
Quality Body and Paint Shop

# Let People Know that you're in business

by devising unusual and exploiting the approved methods to

keep your body shop's name before Mr. & Mrs. John Q. Public

**O**UTSIDE Paul Brothers' shop in Philadelphia, Pa., sits a "hopeless wreck." Next week another wreck, equally bad, will take its place. For years these horrible examples have adorned the sidewalk of this large body shop, and for years motorists' eyes have turned toward Paul Brothers' building as they pass, watching to see what the smash-up-of-the-week looks like.

There is no sign on the wreck to advertise this firm's prowess as body repairmen, but these dramatic displays do a terrific job of selling Paul Brothers to Philadelphia's motoring public.

In another eastern city a 1942 Ford sits outside a body shop. Every few weeks the car is a different color. This job subtly advertises to thousands of passersby daily that it specializes





One shop in Buffalo, N. Y., periodically sends picture post cards like this to the townspeople as a sales promotion effort.



Keeping the wrecker well identified is low cost, but effective advertising.



in complete refinishing. Just to draw additional attention, the car always has a "for sale" sign on the windshield. But the fact that it's there month after month (with its color changing like a chameleon) makes the car of far more interest to potential paint job customers than used car buyers. All chrome, in fact, everything except glass and rubber are painted to reduce masking costs.



This shop always has a bad wreck like this out front. Just a reminder to the public that they fix 'em all.



Another shop makes their antique Franklin do double duty as a "service car" and a rolling ad.



A body shop, located in a small Pennsylvania community is subtly advertised by the owner's customized Ford, which is "the talk of the town."

Somewhere else a motorist receives a letter with a photograph of his dented fender. The letter, from a nearby body shop, gives him a repair estimate and an invitation to bring the car in. This shop owner makes use of his spare time and camera by traveling around looking for parked cars with dents. He takes a picture and makes up an estimate of the damage. Having a list of license numbers and corresponding addresses of car owners, he can write them letters inviting them in to have the work done.

Many new merchandising methods are being  
(Continued on page 94)



## Servicing the Packard

# Electro-Hydraulic

This information on 1948-1950 Packards will be helpful on many other makes

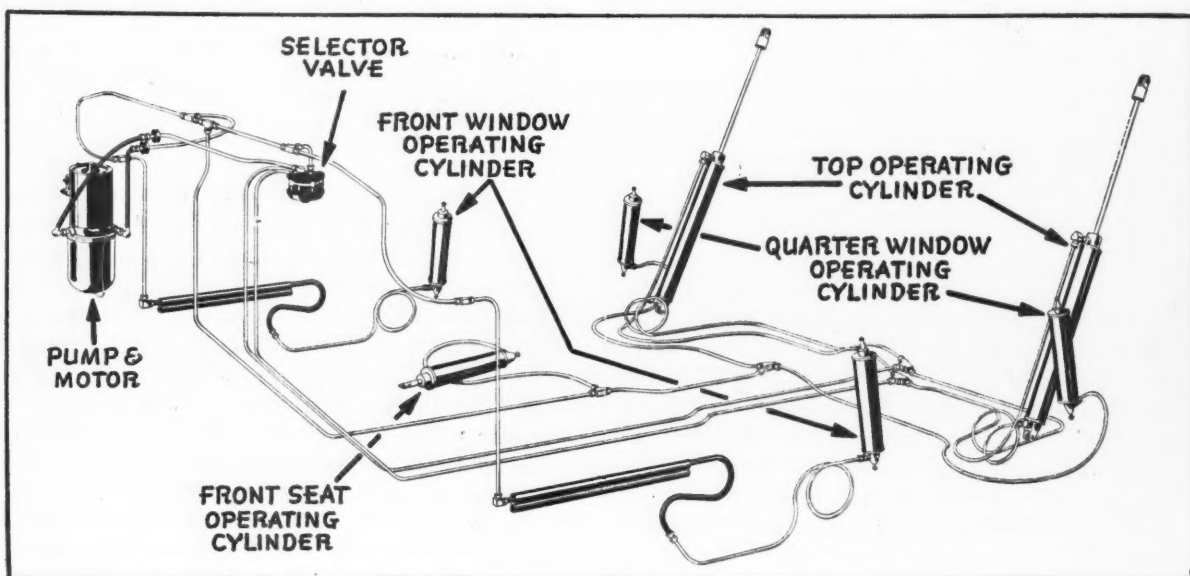


Other helpful information of this type is available in Chilton's Motor Age Body and Frame Manual

**T**HE electro-hydraulic system used in the 1948-1950 Packard cars is typical of systems used in many makes. It operates the windows, moves the front seat and, on convertibles, raises and lowers the top. It consists of an electrically operated pump, a reservoir for the hydraulic fluid, tubing and actuating cylinders. A separate set of switches controls the individual cylinders for each window and the seat. A switch and valve assembly controls the pair of double-acting cylinders for the top.

To raise the windows or move the seat forward, the switch button is moved to complete the circuit which starts the pump and opens

Schematic diagram of the hydraulic lines in the Packard convertible. Notice the double acting cylinders, with connections at each end, for the top. Direction of fluid flow for the top mechanism is controlled by the selector valve.





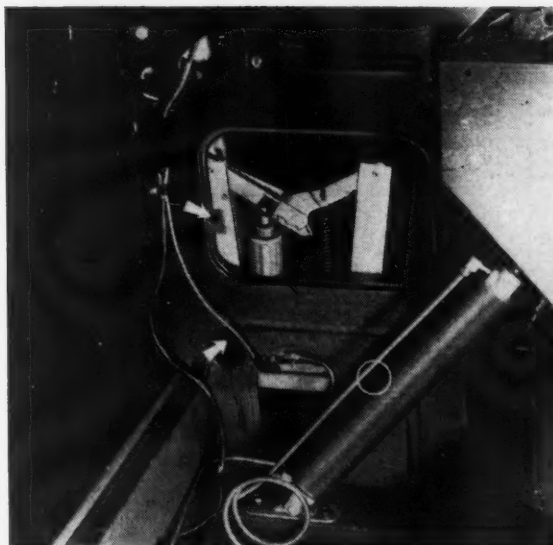
# System

by Arthur H. Nellen, Jr.,  
Service Editor

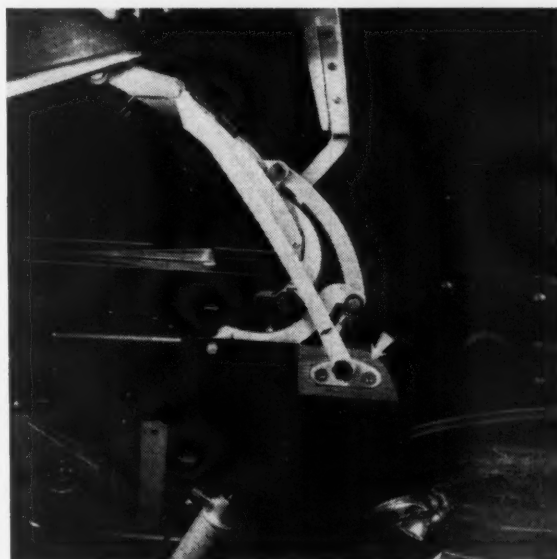
the appropriate solenoid valve. Hydraulic pressure in this cylinder forces the piston upward, raising the window or moving the seat. For the reverse action, the switch again opens the solenoid but does not start the pump. Instead, the coil springs return the windows or seat to the down, or back position, or to any desired position between. The piston is pulled down and the fluid returned to the reservoir by spring tension. The top is operated by power from the pump in both directions. The combination distributing valve and switch starts the pump and sends fluid to the proper side of the double-

*(Continued on page 172)*

3. Flexible tubing and wires which operate the door windows. Notice the cover to prevent chafing.

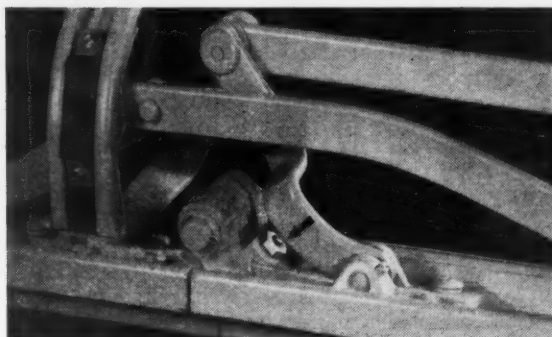


4. Adjustment points for the rear quarter windows. The third screw is behind the panel at the circle.



5. Top side rail is adjusted by shifting the serrated bracket indicated by the arrow.

6. Moving the adjusting screw shown at the arrow eliminates the hump at the side rail hinge.





# 1951 New Passenger Car Registrations by Makes and States\*

STATE AND MONTH	Buick	Cadillac	Chevrolet	Chrysler	Crosley	De Soto	Dodge	Ford	Henry J	Hudson	Kaiser-Frazer	Lincoln	Mercury	Nash	Oldsmobile	Packard	Plymouth	Pontiac	Studebaker	Willis	All Others	Total	
Alabama.....	October 406	76	1486	111	9	91	326	1068	95	66	42	45	263	149	248	62	575	452	266	43	5	5,884	
October 10 Mos.	3930	683	12836	1183	61	813	2808	10886	771	595	368	283	2635	1081	2525	473	5905	3536	2158	289	80	53,899	
Arizona.....	October 123	26	304	55	6	30	76	250	10	29	10	8	79	51	74	19	113	115	101	11	19	1,509	
October 10 Mos.	1547	306	4430	531	50	270	863	3234	155	425	170	102	921	534	953	228	1602	1124	1024	91	135	18,696	
Arkansas.....	October 205	45	782	59	1	77	214	604	44	43	32	12	143	93	126	28	451	210	185	20	5	3,359	
October 10 Mos.	2259	446	7758	706	32	730	1782	6063	469	482	394	127	1478	758	1469	275	4286	2042	1326	272	16	33,168	
California.....	October 2022	1091	5397	1035	20	749	1637	4634	133	591	223	191	1699	1163	1682	379	2361	1780	1277	228	675	28,947	
October 10 Mos.	25878	9440	68035	12815	239	8049	16898	54405	2025	6878	2308	2058	19247	10649	19876	4181	32728	21744	17326	1936	5149	341,664	
Colorado.....	October 217	60	574	87	6	50	148	381	13	57	16	25	128	94	111	38	221	145	104	31	23	2,529	
October 10 Mos.	3521	681	7209	1368	94	655	2005	6101	264	1195	289	271	1968	1096	2012	519	3834	2286	1337	319	84	37,076	
Connecticut.....	October 401	149	1139	173	9	122	404	732	96	134	65	39	246	210	339	101	497	320	276	54	99	5,605	
October 10 Mos.	4817	1474	12245	2134	83	1421	4399	9116	1186	1380	854	371	3050	1813	3942	1080	6650	4147	2893	471	698	64,224	
Delaware.....	October 82	25	210	18	3	17	61	173	16	18	12	7	48	34	56	14	93	59	55	4	6	1,011	
October 10 Mos.	1035	255	3052	290	25	196	794	2420	154	209	128	86	537	296	789	144	1230	996	751	50	42	13,479	
Dist. of Col.....	October 95	52	354	59	1	31	134	244	15	43	9	10	51	40	103	31	292	111	85	33	19	1,782	
October 10 Mos.	1549	586	4933	773	10	394	1579	3475	248	375	95	144	789	422	1397	279	3825	1963	635	106	152	23,327	
Florida.....	October 648	197	1425	234	33	194	548	908	188	104	79	87	446	258	425	145	878	370	336	108	151	7,762	
October 10 Mos.	6224	1892	15441	2407	426	1401	4536	12977	1706	1162	740	686	471	1796	3998	1178	8583	5207	2636	927	1227	79,991	
Georgia.....	October 514	105	1331	106	9	79	314	1240	99	76	45	36	305	156	284	72	567	441	302	44	27	6,342	
October 10 Mos.	6666	1214	19148	1663	110	1036	4197	16267	1132	959	749	561	4621	1297	3834	842	8215	6674	3339	405	259	83,186	
Idaho.....	October 139	34	317	39	6	22	103	213	6	51	21	6	79	74	88	18	120	86	103	15	9	1,543	
October 10 Mos.	1778	336	3946	574	6	377	1092	3085	169	622	334	122	998	762	1019	311	1822	1342	1296	286	47	20,329	
Illinois.....	October 2409	766	5211	754	24	757	2108	4290	161	777	306	196	1241	1282	1610	497	3216	2100	1386	79	715	29,851	
October 10 Mos.	25707	6407	60084	9457	250	7378	19951	46984	1767	9828	3651	1631	13809	9662	17048	4700	38174	19127	11632	772	2406	310,823	
Indiana.....	October 949	236	2596	283	12	306	728	2177	116	291	151	77	508	545	593	180	1132	852	917	56	12	12,717	
October 10 Mos.	9850	2166	29463	3726	171	3007	7260	23003	1549	3170	1680	82	104	72	21	295	234	315	78	618	39	13,286	
Iowa.....	October 479	106	1583	194	1	144	450	1192	32	1300	1019	315	3833	2474	4203	905	9570	5360	3391	199	15	6,631	
October 10 Mos.	6143	1174	19382	2644	40	1573	5062	15299	485	105	81	40	303	264	354	77	604	441	325	27	7	64,295	
Kansas.....	October 494	107	1388	165	7	122	398	1064	60	165	81	43	19	166	163	227	46	373	301	218	29	7	6,493
October 10 Mos.	4996	936	14074	1605	71	1146	3539	11831	653	1414	850	297	3169	2282	3131	702	5785	3593	2324	316	52	44,293	
Kentucky.....	October 303	72	1034	97	5	63	227	768	39	63	43	19	166	163	227	46	373	301	218	29	7	6,493	
October 10 Mos.	3658	714	12972	1409	52	839	3053	10619	454	676	400	165	1997	1540	2732	574	5785	3593	2324	316	52	44,293	
Louisiana.....	October 339	86	1232	117	6	137	265	961	58	52	44	17	170	89	242	67	465	382	284	31	6	5,096	
October 10 Mos.	3271	802	12700	1477	60	1077	2486	10546	543	502	541	178	2075	722	2340	521	5798	3447	2409	253	44	51,594	
Maine.....	October 141	31	417	49	3	44	146	298	32	49	34	8	84	62	111	25	226	130	78	19	13	2,020	
October 10 Mos.	1543	323	4261	536	4	173	384	1109	125	176	63	59	254	266	299	107	740	367	277	38	36	6,597	
Maryland.....	October 426	103	1437	147	6	178	384	1109	125	176	63	59	254	266	299	107	740	367	277	38	36	6,597	
October 10 Mos.	4403	893	15730	2079	63	1320	4022	11625	1217	1598	580	388	2838	1920	3443	942	8180	4075	2530	302	240	68,635	
Mass.....	October 719	210	1777	250	18	294	627	1535	88	174	75	54	439	447	663	113	922	596	436	75	126	9,638	
October 10 Mos.	8987	2237	23479	3734	204	3469	7803	18607	1121	2362	1029	651	6258	3814	8775	1437	14855	8309	4971	658	748	122,416	
Michigan.....	October 1687	570	5328	470	7	413	1135	5187	150	407	212	126	1035	796	1220	255	1802	1598	701	55	79	23,221	
October 10 Mos.	23646	6895	68024	7119	107	5456	15684	64058	2945	5404	3178	1426	13267	7086	16452	3111	29758	22591	8146	636	350	305,129	
Minnesota.....	October 593	123	1650	247	1	229	705	1190	72	95	161	33	523	181	329	152	947	507	359	26	5	8,128	
October 10 Mos.	7488	1821	22627	3473	36	2380	6121	17096	711	1581	1408	391	4285	2263	4979	1493	12168	6589	4385	281	69	101,311	
Mississippi.....	October 224	55	781	103	4	62	189	583	62	38	20	15	145	77	139	39	368	180	202	23	6	3,318	
October 10 Mos.	2972	532	8894	988	31	566	1685	6735	462	306	308	145	1597	523	1543	331	4312	2184	1587	159	28	35,836	
Missouri.....	October 732	196	2429	279	5	302	623	1951	72	122	79	76	548	553	459	138	1385	705	402	34	14	11,094	
October 10 Mos.	8122	1843	29115	3334	77	2851	6091	21725	819	1411	965	521	5935	4633	5548	1302	15720	7093	3837	414	109	121,465	
Montana.....	October 166	37	388	67	2	37	120	268	10	66	22	18	98	43	128	31	163	113	92	24	1	1,894	
October 10 Mos.	1634	377	4635	695	14	381	1158	3577	152	695	215	110	971	411	1261	308	2078	1298	945	273	6	21,184	
Nebraska.....	October 407	90	1214	132	4	91	244	742	32	72	41	30	254	102	219	69	441	317	245	25	5	4,776	
October 10 Mos.	4137	826	10059	1804	47	768	2309	9084	234	909	446	234	2399	1003	2288	631	5572	3452	1975	240	23	46,720	
Nevada.....	October 40	17	82	26	1	11	24	46	1	18	2	20	12	32	16	32	179	17	4	1	590		
October 10 Mos.	424	160	1007	267	7	117	301	749	25	130	32	37	301	84	312	169	553	415	287	53	7	5,437	
New Hamp.....	October 58	19	252	25	2	14	77	184	22	43	10	3	48	38	45	14	93	66	58	17	9	1,097	
October 10 Mos.	1021	203	3263	352	17	215	870	2257	236	385	208	63	582	507	758	199	1457	1015	605	183	83	14,476	
New Jersey.....	October 869	337	2907	369	11	303	850	1933	147	272	131	74	582	438	619	234	1064	855	433	79	80	11,937	
October 10 Mos.	12048	3427	29211	5271	155	3588	11496	23569	2808	3576	2259	853	7589	4047	8720	2646	16142	11516	5988	1131	824	156,632	
New Mexico.....	October 130	31	276	40	3	23	50	243	5	23	13	9	104	41	68	18	123	105	133	18	2	1,498	
October 10 Mos.	1404	257	3158	469	38	272	722	2309	112	327	126	106	870	348	814	197	1405	1065	810	159	18	14,998	
New York.....	October 2522	938	5391	884	21	957	2180	3846	310	552	313	211	1198	1102	1789	532	2421	1932	1115	241	313	27,769	
October 10 Mos.	31206	8995	67217	12865	346	11602	28687	52295	4670	7179	4701	2078	15904	10151	23167	5912	38299	25912	13480	2580	3120	370,368	
N. Carolina.....	October 567	138	1830	127																			





*Newest of the new for '52*

New style stars from the skyways  
for America's highways

*Pace-setting*  
*new 1952 Studebakers*

*with distinctive new aerodynamic lines*

**NEW COMMANDER V-8**

**NEW CHAMPION**



# Shop Kinks



**\$25**

**FOR THE BEST KINK  
PUBLISHED  
EACH MONTH**

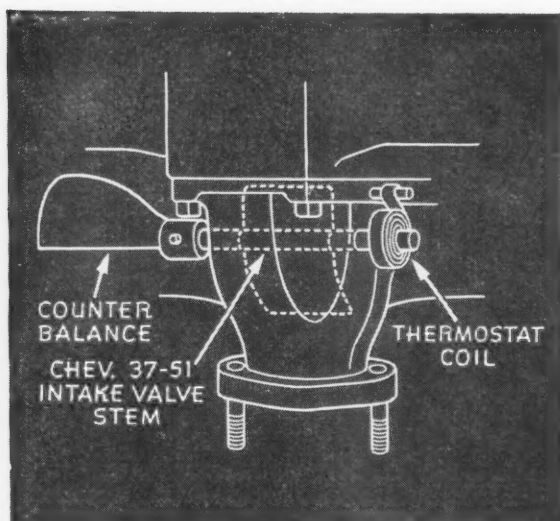
**\$7.50**

**FOR ALL KINKS  
PUBLISHED  
EACH MONTH**

If you've come upon an original idea for making a job easier, a special tool, short cut on a job or any trick of value to other readers, write it down and, if necessary, make a rough sketch. Just make it clear. Send it to Motor Age. If we can use your Kink it may bring seven-fifty, possibly 25 dollars.

## Best Kink of the Month

### Chevrolet Heat Riser Repair



This is a repair which we have devised for worn manifold heat controls on Chevrolets from 1937 through 1951. Remove the manifolds and separate the exhaust from the intake section. Remove the butterfly valve and shaft. Then take a Chevrolet intake valve stem and mark the correct length, position of the thermostat slot, butterfly location and counterbalance location from the old shaft. Remove the old shaft (butterfly weld will have to be removed with a torch), and ream the manifold with an 11/32 STD valve guide reamer. The new shaft, which is made from the valve stem, can now be installed, the butterfly welded in place and the other parts installed. *R. B. Reid, Kane Chevrolet, 202 Donnelly, DeSoto, Missouri.*

### How to Correct Sticking Wiper Motors

We have come across several 1951 Plymouths with windshield wipers sticking. In most cases they can be repaired by checking the wiper motor mounting. This motor must

be free to move back and forth when operating. It is mounted in rubber, and it should not be bolted too tight. Also make sure there is ample clearance between the radio and the motor. *Bob Erny, 1730 Cherry St., Phila., Pa.*

### Cure for Slipping Out of Second Gear

A 1941 Ford came into the shop that can't hold second gear. I took the shifting plate off the side of the transmission first and then re-

*(Continued on page 90)*





# YOU'RE THE DOCTOR

...with Perfect Circle's

# 2 in 1 Chrome Piston Ring Set

Only 2 in 1 offers a choice of spring pressures!

**Now**—for the first time—mechanics can choose the spring pressure best suited to every engine without switching between various brands or types of rings!

**Only Perfect Circle's 2-in-1 Chrome Set** offers a choice of spring pressures! Two expander springs—a **NORMAL PRESSURE Spring** for resleeved, re-bored and slightly worn engines, and a **HIPRESSURE Spring** for badly worn engines—are packed with each Chrome Oil Stopper.

**The 2-in-1 Chrome Set** more than doubles the life of cylinders, pistons and rings, because solid chrome plating on top compression rings and the steel rails of the oil rings assures twice the life of ordinary ring sets! Yes, for double service, double life, sustained power and new economy—specify 2-in-1! Perfect Circle Corporation, Hagerstown, Indiana.



SOLID CHROME PROTECTS  
THESE WEARING SURFACES

## Perfect Circle

PISTON RINGS

*The Standard of Comparison*





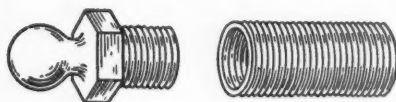
## Shop Kinks . . . . . Continued from Page 88

moved the pin and lever from the shaft that actuated the second gear. After that I removed the shaft and notched plate from the shifting casting. I used a thin stone and set the notch, that holds the detent fall into second gear, over a little farther and a little deeper. After I assembled the shaft in the casting and placed the shifting cap back on the transmission, the shift handle on the steering column went up into place and stayed there. It remained there in second gear at any speed and on a pull. This operation saves a transmission job and maybe a couple of gears. *L. M. Kesler, Mound Valley, Kansas.*

### Easy Permanent Repair On Buick Clutch

On Buick cars with conventional transmissions and clutches, the clutch release fork pivot ball threads, in the flywheel housing, sometimes become stripped. To avoid an expensive job of replacing the housing I make a permanent repair with tools found in every small repair shop:

1. Remove the clutch if not already out.
2. Use a  $\frac{1}{4}$  inch pipe top. Run the top in the stripped hole as far as possible and then run the top in all the way from the front side of the housing. (This will enlarge the hole.)



3. Run a 25/32 drill through the hole from the rear with a pair of vise grip pliers.
4. From the front side of the hole taper about  $\frac{1}{8}$  inch to  $\frac{3}{16}$  inch with a  $\frac{3}{8}$ - $\frac{5}{8}$  pipe reamer.
5. From the front side run a  $\frac{3}{8}$ - $\frac{5}{8}$  pipe. Tap until the end of the top protrudes  $\frac{1}{8}$ - $\frac{3}{15}$  inch through the hole.
6. Procure a  $\frac{3}{8}$  inch pipe nipple, two to three inches long and tap out the nipple with a  $\frac{1}{2}$ -20 SAE tap.
7. Screw the nipple into the housing, tighten with a pipe wrench,

saw off the nipple with a hack saw blade.

8. Chuck a sanding drum  $1\frac{1}{2} \times 1$  inch and  $2\frac{3}{16} \times 1$  inch size, into an electric drill and grind the sawed off nipple flush with the machined surface of the housing.

9. Screw in the pivot ball and tighten.—*Al Ruedy, 2300 Webster Street, Oakland, California.*

### Bushing Eliminates Transfer of Noise Up Accelerator Rod

On the Chevrolet cars, to eliminate the motor noise that follows up the foot feed rod and pedal, try this. Remove the foot feed rod and with a  $27/64$  inch drill, enlarge the eye in the rod on the pedal end. Then insert a Chevrolet No. 3652244 gear shift lever bushing. Then reassemble the unit. This rubber bushing acts as an insulator and eliminates the noise traveling up the rod and pedal. *Leonard Sondag, Gretter Chevrolet Company, Keota, Iowa.*

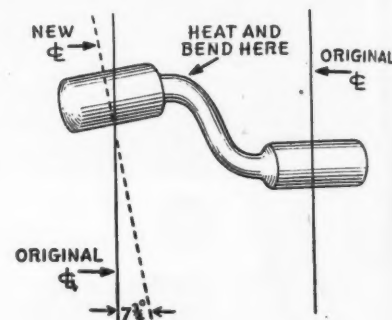
### Vacuum Helps Retrieve Disappearing Valve Stem

If, when installing a valve spring in an overhead valve engine without pulling the head, you accidentally drop the valve down the guide, it falls down about an inch in the guide. It is a trick to get the valve back up. Take a hose that has a bigger hole than the valve stem and hold it tight on top of the guide. Draw on the hose to form a vacuum and the valve will come right up. When the valve is up, which you can easily feel, slide the hose off of the guide and trap the valve stem. If the valve stem and guide is dry, a few drops of oil will stop the vacuum leak. You can also hook the hose to the vacuum line on a distributor testing machine. *Lester Schwab, Endres Motor Sales, 3700 West Main Street, Belleville, Illinois.*

### Removing Shimmy From Chrysler-Made Cars

I have a method of overcoming wheel fight in the 1946 through 1948 Dodge, DeSoto and Chryslers,

in crossing the rough railroad tracks and other rough spots in the road. Remove the pitman arm. Heat and bend it  $7\frac{3}{4}$  degrees down. This repositions the tie rods in relation to the lower control



arms, giving the front end more stability. This is not a cure-all if the front springs are low or shocks are bad, but if all other factors are correct and the front wheels shimmy momentarily under the above conditions, this remedy is sure-fire. *Bob Marker, 12690 Weedmont Road, Detroit, Michigan.*

### Time Saved on Willys Hurricane Head Removal

On Willys-Overland pickups and others equipped with F-head Hurricane engines where the engine is placed back under the body seam far enough, the studs usually have to be removed to allow the head to come off. We found that time can be saved by removing the two front motor supports and letting the motor rest on the motor support brackets. The head can then be removed easily. *Alvis Rainwater, Rainwater Motor Co, P. O. 208, Fort Stockton, Texas.*

### How to Assure Brake Bonding Without High Spots

Sometimes in the process of bonding lining to brake shoes I find that the lining sometimes tends to puff up as steam accumulates between the lining and the shoe. This causes high spots on the lining and often spaces between the lining and the shoe. Drill  $1/16$  inch holes through the center of the lining about one inch apart so as to let the steam escape. This gives you a better bonding job and no high spots on the surface of the lining. *George Sanstead, Pelican Rapids, Minnesota.*



This sign means

# BUSINESS

for YOU...

because it will attract  
more FORD customers  
to your shop!



★ Over the years Ford owners everywhere have come to know that this familiar blue and white sign identifies the right parts for Fords. So when you display this famous Genuine Ford Parts sign, you let more Ford owners know that you are headquarters for the

parts they want. And that attracts profitable Ford service business you may be losing to shops "around the corner."

You also get the benefit of advertising in national magazines. Month after month strong selling messages remind Ford owners to look for Genuine Ford Parts at Ford Dealers' and garages that display this sign. And that can mean you.

Mail this coupon now!

You'll find out how to get this profit-building sign. It costs you nothing—yet it's yours as long as you stock and use Genuine Ford Parts. Then get the extra Ford service business that means extra service dollars for you.



Parts and Accessories Sales Department  
FORD Division of FORD MOTOR COMPANY  
P. O. Box 658, Dearborn, Mich.

Please send me complete information on obtaining Genuine Ford Parts sign.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

FORD Division of FORD MOTOR COMPANY

Chilton's MOTOR AGE, JANUARY, 1952





# Chilton's MOTOR AGE

## Flat Rate and Service Manual

### Service Suggestions

The information presented here has been compiled from the Factory Service Bulletins, as an additional service of Chilton's Motor Age Flat Rate and Service Manual Department.

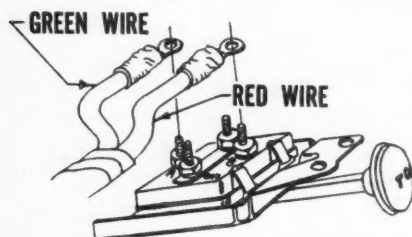
Selected by William H. Lutton  
Assistant Editor  
Chilton's Motor Age Flat Rate and  
Service Manual

#### Plymouth Clutch Linkage Noise Often Confusing

Sometimes a knocking or rattling noise that seems to originate in the engine or clutch assembly when accelerating or decelerating may be caused by loose clutch linkage. This looseness will sometimes give you a buzz or rattle when decelerating, especially from 45 to 35 m.p.h. This looseness can most always be eliminated by the installation of washers.

#### Wiring the Folding Top Operating Switch

Whenever cases of reverse operation of the Pontiac convertible folding top are experienced, you



may obtain proper top operation by reworking the operating switch as follows:

1. Remove the top operating switch from its place on the instrument panel.

2. Now simply reverse the wiring at the operating switch so that the red wire is now attached to terminal "B," and the green wire to terminal "A."

3. After reversing the wires, check the operation of the folding top to make certain it operates correctly.

4. Then reinstall the operating switch at its place on the instrument panel.

#### Studebaker Automatic Drive Linkage Adjustment

In cases of creeping or driving when the selector lever is in the neutral position on Studebaker cars with Automatic Drive, your first test should be a complete check of the selector linkage adjustments.

If these conditions still exist after the adjustments, the selector linkage should be disconnected at the transmission, and the transmission manually placed in neutral.

If the condition is eliminated, it is apparent that the original cause was improper linkage adjustment. You may find it necessary to shorten or lengthen the hand control tube-to-bell crank rod. The proper setting of the bell-crank-to-transmission rod should also be checked.

Should all the proper adjustments of the selector linkage fail to correct this condition, then complete pressure tests should be made to diagnose the cause and to ascertain whether the unit should be replaced.

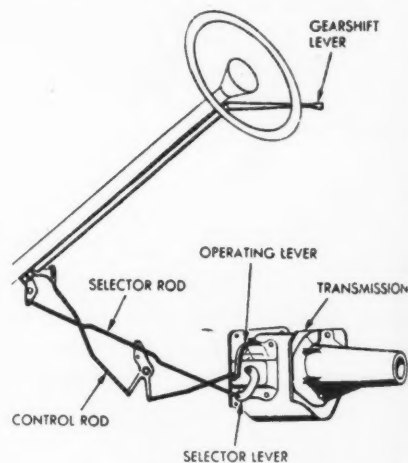
#### Plymouth Gear Shift Linkage Adjustments

Here are a few adjustments to the gearshift linkage that may

help you to eliminate some of the little troubles that may appear from time to time.

1. Having too much travel in gearshift lever may be due to a loose nut on the control rod. To correct this, put the transmission in neutral, put the lever in the horizontal position, and tighten the nut.

2. If there is no gear clash but won't go in gear, indicating trouble inside the transmission, the selector linkage should be checked. If



you cannot get into low or reverse, the adjusting nut on the front end of the selector rod is too loose. Tighten the adjusting nut to eliminate end-play, then back off  $\frac{1}{2}$  turn and tighten lock nut. If you cannot get into second or high, the adjusting nut may be too tight.

3. If a rattle persists in the shift linkage after the aforementioned adjustments have been made, use a throttle linkage spring just ahead of the adjusting nut, to pull down on the selector rod and eliminate any rattle or side play. Examine for, and replace any worn parts



# VIXEN

Trade Mark Reg. U.S. Pat. Off.

# MILLED CURVED-TOOTH FILES

MADE ONLY  
BY  
**HELLER**

**SMOOTHER  
FINISHING!**

**FASTER  
CUTTING!**

**EASIER  
WORKING!**

**LONGER  
LASTING!**

Old hands know it—apprentices learn it fast. It takes a genuine “VIXEN” to produce that “like-new” quality finish quickly, easily.

Of superior cutting power, “VIXEN’s” sharp *milled curved-teeth* practically “plane” the metal. In restoring contours, you actually *shave* off the welds and smooth the surface. No tracking, grooving or clogging.

Work is scratch-free...shining bright.

And remember—because only a milled curved-tooth “VIXEN” can be resharpened again and again, it costs you less in the end. Your jobber has the cuts and shapes you need, including the popular “VIXEN” babbitt cut file—all packed in the white carton and individually sealed in white envelopes for your protection.



**HELLER BROTHERS COMPANY**

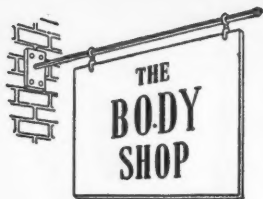
America's Oldest File Manufacturer  
Newcomerstown, Ohio



Handy holder easily curves “VIXEN” in or out to fit contour of auto body or fender

VIXEN FILES ARE MADE ONLY BY HELLER





## Let People Know . . .

Continued from Page 83

devised and tried everyday. Successful body shop operators realize that the business is out there and it's only a matter of "first come, first serve." *MOTOR AGE* recently made a check on 2000 cars as they passed a fixed point on a city street. Over 300 of these two thousand had dents of a minor nature. This represents a tremendous body and repair market. The fact that the damage on these cars is still unrepaired indicates that these motorists have never been sold. The shop that does the merchandising is the shop that gets the work.

There is always room for another new merchandising idea if it's good, and the old stand-by methods as well have been proven effective. Combining the two surely should help to sell body shop service.

Reviewing the old stand-bys first, we know that, as always in the past, manufacturers supply excellent material at a nominal—and sometimes no—cost to the trade. Direct mail material, newspaper advertising mats, suggested radio and television scripts, wall charts, displays and other such helps are available from many manufacturers. A variety of training courses, in selling as well as in the mechanical end, are conducted for body shop operators and employees. Manufacturers' representatives are well qualified to offer advice and suggestions to body shops which want to bring in new customers.

Another, and extremely important, sales help provided by the manufacturers is consumer advertising. Millions of dollars annually are spent to make car owners conscious of their cars' condition.

To add impetus to the regular methods of service merchandising, periodic "booster ideas" can be developed which help to bring in work during slack periods. There is no way to set up a formula or book of rules on how this is done, since every shop must develop its own ideas to suit its customers and con-

ditions. For instance, one body shop, in a state that has compulsory periodic inspection, offered to inspect cars free (the usual price in this state is \$1.00) when brought in for body work, no matter how minor. This "get acquainted" invitation was put in the hands of prospects in the vicinity of the shop by printing it on postcards.

Many body shops use a low cost paint job to bring in new customers. Some establishments bring the price of these jobs down to a very low margin of profit, but it serves as an excellent advertise-



ment and results in drawing many new customers.

Advertising "specials" is by no means a new merchandising method, but it's effective and can be applied to so many services that it provides an endless source of schemes. An undercoating special, for instance, is a good drawing card. Offering under-body protection at a low price brings cars in for that work—and often other work in the body line.

There are many other types of "deals" which can be offered to bring in business. For example, some shops which have car washing facilities distribute free wash tickets. It may cost the business a dollar to bring in the customer, but

creating the habit of coming into the shop is important.

Then there's the subtle form of advertising, where the shop creates curiosity in the public's mind, thus creating interest in its services, and keeping its name before the public's eye. One body man in a small town in Pennsylvania has neatly customized his '49 Ford in such a way that people wonder about it and ask whose car it is. He "gets around," knows people and lets them know about his business. Because his unusual looking car is traveling around and being seen continually, people in his town—his prospective customers—don't get a chance to forget that he's their body man.

Another shop displays greatly enlarged "before and after" photos in its window. They are usually of the more spectacular wrecks and the comparisons make for continuous amazement on the part of the passersby.

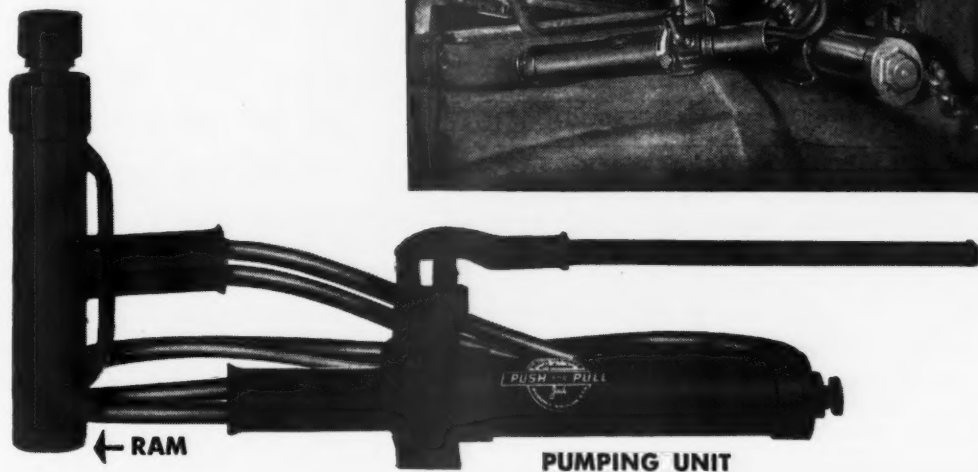
Of course the wrecker is a rolling advertisement and one of the best that is available. It's certainly to the advantage of a body shop (or any repair shop, for that matter) to take advantage of the space on the tow truck for advertising. This should be done in good taste, of course, with one important thing outstanding—the name of the shop. There is little use in cluttering up an ad with details when it is only viewed for a second or two as motorists drive by. So it pays to emphasize the major point, whose truck it is.

Another rolling ad which has been used successfully in the past is an antique car refinished to a "T." It can be used for parts pickup, running errands and other general utility, but its most important function is as an advertisement. The shop's name is painted on each side in unmistakable lettering. If the car has a canvas top, so much the better, because the car can serve as an ad for top replacement as well.

The most important tool in selling new services is a good record of past performances. Top quality work, quick service, courtesy and all of the other features which go into customer satisfaction are essential. These alone will do a lot to keep the customers coming in, but a well rounded out advertising campaign is still sound business.



# HEIN-WERNER "PUSH and PULL" HYDRAULIC JACK



**Pump operates at any angle...does not become airborne**



**HEIN-WERNER CORPORATION**  
**Waukesha, Wisconsin**

The Hein-Werner line of hydraulic jacks is COMPLETE! It includes Under-Axle Jacks of 1 1/2, 3, 5, 8, 12, 20, 30, 50 and 100 tons capacity . . . "Bumper-Lift" Hydraulic Jacks for passenger cars . . . "Swift-Lift" and Service Jacks for shop use . . . Cylinder Sleeve Pullers.

You, too, will like the ease of operation of Hein-Werner "Push and Pull" Hydraulic Jacks for body, fender, and frame repair work. You can push or pull with one ram . . . just turn release valve to right or left. Pump operates in any position.

For example, note the convenient operating angle position of the pump in the above photograph of an actual job. Here a 10-ton capacity "PUSH and PULL" is being used to take strain off side panel while 4-ton capacity "PUSH and PULL" is being used to exert pressure to remove bumps.

Hein-Werner "PUSH and PULL" Jacks are available in 4, 10, and 20 tons capacity, with a wide variety of attachments.

**Ask your jobber or write us for complete information**



# Current Engine and Tune-up Specifications

MAKE AND MODEL	ENGINE					TUNE-UP DATA										STEERING				
	Wheelbase (In.)	No. of Cylinders, Bore and Stroke	Taxable H.P.	Plateau Displacement (Cu. In.)	Maximum Brake H.P. at Specified R.P.M.	Compression Ratio	Spark Plug Make and Type	Rings			Valves			Ignition			Caster (Deg.)	Camber (Deg.)	Toe-In (In.)	King Pin Inclination (Deg.)
								No. and Width Compression	No. and Width Oil	Seat Angle	Inlet	Exhaust	Operating Tappet Clearance	Timing Marks or After TC	Breaker Point Gap	Cam Angle (Deg.)				
Buick Special 40	121 1/2	8-3 1/2"x4 1/2"	32.5	263.3	120-3600	6.6	AC-46X	2-3/8"	2-3/8"	45	HA	HA	HA	138T	.015	•	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4 1/2
Buick Super 50	121 1/2	8-3 1/2"x4 1/2"	32.5	263.3	124-3600	6.9	AC-46X	2-3/8"	2-3/8"	45	HA	HA	HA	138T	.015	•	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4 1/2
Buick Roadmaster 70	126 1/2	8-3 1/2"x4 1/2"	37.8	320.2	152-3600	7.2	AC-46X	2-3/8"	2-3/8"	45	HA	HA	HA	148T	.015	•	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 1/2
Cadillac 61, 62, 60	146 3/4	8-3 1/2"x3 3/4"	46.5	331.0	160-3600	7.5	AC-46-5	2-3/8"	1-1/2"	44	HA	HA	HA	248T	.015	31 ±	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 1/2
Cadillac Six, J, J, K	115	6-3 1/2"x3 3/4"	29.4	216.5	92-3400	6.6	AC-46-5	2-1/2"	1-1/8"	30	HA	HA	HA	181T	.021	34	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4-30"
Chevrolet 2100†	115	6-3 1/2"x3 3/4"	30.4	235.5	105-3600	6.7	AC-46-5	2-1/2"	1-1/8"	30	HA	HA	HA	181T	.021	34	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4-30"
Chrysler C-51	125 1/2	6-3 1/2"x4 1/2"	28.3	264.5	119-3600	7.0	AL-AR-8	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.020	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 to 6 1/2
Chrysler C-52	111	6-3 1/2"x4 1/2"	46.5	331.1	180-4000	7.5	CH-AR-10	2-3/8"	2-3/8"	45	HA	HA	HA	158T	.015	34	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 to 6 1/2
Crosley Four, CD, VC	80, 85	4-2 1/2"x2 1/2"	10.0	44.0	25.5-6400	8.0	CH-JR	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 to 6 1/2
De Soto Six, S-15	125 3/4	6-3 1/2"x4 1/2"	28.3	250.6	116-3600	7.0	AL-AR-8	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 to 6 1/2
Dodge Six, D-41, D-42	(a)	6-3 1/2"x4 1/2"	25.3	230.2	103-3600	7.0	AL-AR-8	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 to 6 1/2
Dodge Six, IHA	114	6-3 1/2"x4 1/2"	25.3	230.2	103-3600	7.0	CH-H10	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 to 6 1/2
Ford Eight, 18A	114	6-3 1/2"x4 1/2"	25.3	230.2	103-3600	6.8	CH-H10	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 to 6 1/2
Ford Six, 515, 516	123 1/2	6-3 1/2"x4 1/2"	25.3	230.2	115-3600	7.3	AL-AS	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4 1/2 to 5 1/2
Henry J	512	4-3 1/2"x4 1/2"	15.6	134.2	68-4000	7.0	AL-AN7	2-3/8"	1-1/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4 1/2
Henry J	514	6-3 1/2"x3 3/4"	23.4	161.0	80-3600	7.0	AL-AN7	2-3/8"	1-1/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4 1/2
Hudson Pacemaker 4A	118 1/2	6-3 1/2"x3 3/4"	30.4	232.0	112-4000	6.7	CH-H8	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	3-38"
Hudson Custom 5A-5A	123 1/2	6-3 1/2"x4 1/2"	30.4	262.0	123-4000	6.7	CH-H8	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	3-38"
Hudson Hornet 7A	123 1/2	6-3 1/2"x4 1/2"	34.9	308.0	145-3600	7.2	CH-H8	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	3-38"
Hudson Comm. 8-5A	123 1/2	8-3 1/2"x4 1/2"	28.8	254.0	128-4200	6.7	CH-H8	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	3-38"
Kaiser Six, 511, 512	118 1/2	6-3 1/2"x4 1/2"	26.3	226.2	115-3650	7.3	AL-A5	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4 1/2 to 5 1/2
Lincoln IEL-IEH	(b)	6-3 1/2"x4 1/2"	39.2	336.7	154-3600	7.0	CH-H10	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5
Mercury ICM	118	8-3 1/2"x4 1/2"	32.5	255.4	112-3600	6.8	CH-H10	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5
Nash Rambler, 5110	100	6-3 1/2"x3 3/4"	23.4	172.6	82-3600	7.3	AL-A5	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	8 1/2
Nash Statesman, 5140	112	6-3 1/2"x4 1/2"	23.4	184.0	85-3600	7.0	AL-A5	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	8 1/2
Nash Amb., 5160	121	6-3 1/2"x4 1/2"	27.3	234.8	115-3400	7.3	AL-A5	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	8 1/2
Oldsmobile Super 88	119 1/2	8-3 1/2"x3 3/4"	45.0	303.7	135-3600	7.5	AC-46-5	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4-29/47"
Oldsmobile Super 88	122	8-3 1/2"x3 3/4"	45.0	303.7	135-3600	7.5	AC-46-5	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4-29/47"
Packard 200	122	8-3 1/2"x3 3/4"	38.2	288.0	135-3600	7.0	(k)	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.017	(f)	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5-50"
Packard 250 & 300	127	8-3 1/2"x4 1/2"	38.2	327.0	150-3600	7.0	(k)	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.017	(f)	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5-50"
Packard 400	127	8-3 1/2"x4 1/2"	38.2	327.0	155-3600	7.0	(k)	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.017	(f)	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5-50"
Plymouth Six, P22, P23	(b)	6-3 1/2"x4 1/2"	25.3	217.8	97-3600	7.0	AL-AR-8	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 to 6 1/2
Pontiac Six, 250	120	6-3 1/2"x4 1/2"	30.4	239.4	100-3400	6.8	AC-44-5	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	4 1/2 to 5 1/2
Pontiac Eight, 27	120	6-3 1/2"x3 3/4"	36.4	268.4	118-3600	6.8	CH-J7	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 1/2
Studebaker Six, 10G	115	6-3 1/2"x4 1/2"	21.6	169.5	85-4000	7.0	CH-J7	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 1/2
Studebaker Six, H	104	4-3 1/2"x3 3/4"	15.6	134.2	72-4000	7.4	CH-J7	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5 1/2
Willys Six, 673	104	6-3 1/2"x3 3/4"	23.4	161.0	75-4000	6.9	CH-J7	2-3/8"	2-3/8"	45	HA	HA	HA	128T	.015	34 1/2	+1 1/2 to +1 1/2	+1/2 to -1/2	1/2 to 1/2	5

## ABBREVIATIONS

- 1952 models.
- With Standard Accessories.
- C-53, 6 1/2 to 8
- 125 1/2 - 131 1/2 - 145 1/2
- Plus or Minus 1 1/2"
- Camber.

- (b) - 121 in. for IEL model; 125 in. for Cosmopolitan model.
- (c) - Upper Ring 1 1/2 in., Lower Ring 1.865 in.
- (d) - Top ring .093; bottom ring .123.
- (e) - D41 Fan Drive.
- (f) - Model 61 - 122, 62 - 120, 60 - 120 in.

- (f) - Auto-Lite 27, Delco 21 1/2.
- (g) - Top Ring 3 1/2; Middle Ring 3.
- (h) - Auto-Lite A5H; AC46-5; Champion J-8
- (i) - Upper 1 1/2; Lower 3/4.
- (j) - D41 = 115; D42 = 121 1/2.
- (k) - 222 - 111; P23 = 118 1/2.
- (l) - 115 and 119 inches.

- (v) - Left side 1/2° to 1/2° higher than right.
- CC - Crankshaft and Camshaft Sprockets.
- CH - Champion Spark Plug Co.
- CP - Crankshaft Pulley.
- DA - Distributor Housing.
- DL - Hydraulic Automatic Adjustment.
- TC - Top Center.
- BT - Before Top Center.
- G - Cold.



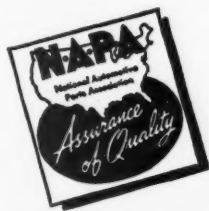
# WHO'S A CAPITALIST?



YOU ARE! . . . and so is every other independent American Mechanic! You're a capitalist because you own means of production. Maybe not railroads or steel mills, but Tools, like that New Britain Ratchet you're holding. You liked it, and you bought it (nobody stops you). You work with it as long and as hard as you wish (nobody limits you). You buy what you please with the money it helps make . . . more New Britain Tools, or even a little piece of a railroad or steel mill in the form of stock (nobody objects). You own that Ratchet as well as all the other New Britain Tools in your Kit, and you have full control of the money they make. So you're a capitalist. Not bad, either . . . beats anything you'll find anywhere else in the world! Let's keep our American system — and work to make it better.



**NOTE TO OTHER CAPITALISTS:**  
Before you invest in more means of production, ask your Jobber about New Britain Hand Tools. A complete high quality Line for every Tool need.



## New Britain

**GREATER STRENGTH • BETTER FIT HANDTOOLS**  
THE NEW BRITAIN MACHINE CO., NEW BRITAIN, CONN.



# Current Passenger Car Price, Weight and Body Table

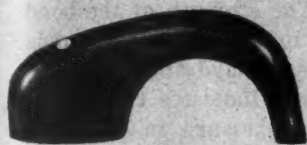
Following are prices at factory for cars with standard equipment including the fifth tire and tube as of December 20, 1951. State or local taxes, transportation and finance charges and optional equipment are extra.

BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight
BUICK					CROSLEY					HUDSON (Continued)					PACKARD (Continued)				
Special 40					Bus. Cpe.	874			1340	Conv. Brghm.	2895				200 De Luxe				
Bus. Coupe, 2d.	1815	172	1987		Hotshot Rdet.	882			1175	Holywd. Cpe.	2677				Club Sed., 2d.	2414	208	2622	3610
Spt. Coupe, 2d.	1869	177	2046	3600	Sta. Wagon	928			1403	Commodore 8				Sedan, 4d.	2464	211	2675	3665	
Sedan, 2d.	1901	179	2080		Spta. Rdstr.	953			1175	Club Coupe	2368			250					
Sedan, DeL., 2d.	1944	183	2127	3615	Sedan.	957			1363	Sedan, 4d.	2392			Cpe. Mayfr.	3028	265	3293	3635	
Sedan, 4d.	1955	184	2139	3605	Conv. Sedan	959			1320	Holywd. Cpe.	2677			300					
Sed. DeL., 4d.	1998	187	2185	3680	Super Sta. Wag.	997				Conv. Brghm.	2895			Sedan, 4d.	2843	251	3094	3680	
Sed. Rivra., 2d.	2036	189	2225	3645										400					
Conv. Cpe., 2d.	2349	212	2561	3830										Sedan, 4d.	3468	301	3767	4120	
Super 50					DE SOTO					KAISER									
Sed. DeL., 2d.	2048	200	2248	3685	De Luxe					Special									
Sed. Rivra., 2d.	2147	209	2356	3765	Club Coupe	2055	160	2215	3445	Bus. Coupe	1832			3061					
Sed. DeL., 4d.	2148	208	2356	3755	Sedan, 4d, 6p.	2066	161	2227	3550	Sedan, 2d.	1987			3106					
Sed. Rivra., 4d.	2223	214	2437	3845	Carry-All	2279	178	2457	3680	Sedan, 4d.	2036			3126					
Conv. Cpe., 2d.	2493	235	2728	3965	Sedan, 8p.	2784	217	3001		Traveler, 2d.	2085			3210					
Estate Wag., 4d.	2671	262	3133	4100	Custom					Traveler, 4d.	2134			3270					
R'dmaster, 70					Club Coupe	2243	175	2418	3565	Club Coupe	1978								
Sed. Rivra., 4d.	2774	270	3044	4240	Sedan, 4d, 6p.	2261	176	2438	3680	De Luxe				3151					
Cpe. Rivra.	2780	271	3051	4185	Sportsman	2561	199	2761	3720	Sedan, 2d.	2095			3111					
Cpe. Rivra., 2d.	2865	278	3143	4235	Convertible	2655	207	2862		Club Coupe	2114			3171					
Conv. Cpe., 2d.	2995	288	3283	4355	Station Wagon	2827	220	3047	4020	Sedan, 4d.	2143			3171					
Estate Wag., 4d.	3459	321	3780	4470	Sedan, 4d, 8p.	2980	231	3211	4155	Traveler, 2d.	2192			3285					
					Suburban	3310	256	3566		Traveler, 4d.	2241			3345					
										LINCOLN									
CADILLAC					DODGE					Coupe, 6p.	2505			4065					
Series 62					Wayfarer					Spt. Sedan	2553			4130					
Coupe	3167			4050	Coupe, 3p.	1664	131	1795	3050	Lido	2702			4100					
Sedan	3253			4040	Roadmaster, 3p.	1784	140	1924		Cosmopolitan									
Cpe. de Ville	3547			4120	Sedan, 2d.	1795	141	1936	3140	Coupe, 6p.	3129			4340					
Convertible	3681			4340	Meadowbrk.					Spt. Sedan	3182			4415					
Series 60					Sedan	1910	149	2059	3355	Capri	3350			4360					
Sedan	3815			4200	Coronet					Convertible, 6p.	3691			4615					
Series 75					Club Coupe	1977	155	2132	3290	<b>MERCURY</b>									
Sedan, 6p.	4791			4690	Sedan, 4d.	1992	156	2148	3385	Coupe, 6p.	1947			3485					
Imperial	4983			4710	Diplomat	2298	180	2478	3475	Spt. Sedan	2000			3550					
					Conv. Coupe	2382	186	2568	3520	Monterey	2116			3530					
					Sierra	2568	200	2768	3735	Monterey	2127			3530					
					Sedan, 4d, 8p.	2705	211	2916		Convertible	2380			3760					
										Station Wagon	2530			3800					
CHEVROLET					FORD					<b>NASH</b>									
Styl. Spec. JJ					De Luxe 6					Rambler Super									
Bus. Cpe., 2d.	1335			3040	Bus. Coupe	1324			2990	Suburban	1731			2515					
Sedan, 2d.	1410			3095	Tudor	1417			3035	Sedan, 2d.	1810			2420					
Spt. Coupe, 2d.	1415			3060	Fordor	1465			3105	Convertible, 2d.	1833			2430					
Sedan, 4d.	1458			3130	Cust. DeL. 6					Stat. Wag., 2d.	1833			2515					
Fltn. Spec. JJ					Club Coupe	1505			3025	Statem'n DeL.									
Sedan, 2d.	1410			3090	Tudor	1505			3035	Bus. Coupe	1686			2835					
Sedan, 4d.	1458			3130	Fordor	1553			3105	Stat'mn. Supr.									
Styl. DeL. JK					Station Wagon	2029			3550	Sedan, 2d.	1765			2930					
Sedan, 2d.	1491			3110	De Luxe 8					Club Cpe., 2d.	1789			2935					
Spt. Coupe	1507			3115	Bus. Coupe	1411			3030	Sedan, 4d.	1792			2970					
Sedan, 4d.	1539			3140	Tudor	1492			3075	Stat'mns Cust.									
Bel Air Coupe	1755			3225	Fordor	1540			3145	Sedan, 2d.	1924			2940					
Conv. Coupe	1862			3380	Cust. DeL. 8					Club Cpe., 2d.	1947			2950					
Stat. Wagon	2013			3470	Tudor	1585			3075	Sedan, 4d.	1950			2990					
Fltn. DeL. JK					Club Coupe	1590			3065	Ambassador									
Sedan, 2d.	1491			3125	Fordor	1633			3145	Super									
Sedan, 4d.	1539			3155	Victoria	1925			3185	Sedan, 2d.	2111			3370					
					Conv. Coupe	1948			3305	Club Cpe., 2d.	2133			3370					
					Station Wagon	2110			3590	Sedan, 4d.	2137			3410					
										<b>OLDSMOBILE</b>									
CHRYSLER					HENRY J					Super 88									
Windsor 8					Sed. 2d, 4 cyl.	1332			2293	Club Cpe., DeL.	2025	194	2219	3557					
Club Coupe	2196	171	2368	3575	Sed. 2d, 6 cyl.	1466			2341	Sed., DeL., 2d.	2068	197	2265	3579					
Sedan, 4d, 6p.	2217	173	2390	3660						Sed., DeL., 4d.	2127	201	2328	3636					
Twn. and City	2843	220	3063	4015	<b>HUDSON</b>					Hol. Cpe., DeL.	2340	218	2558	3643					
Sedan, 4d, 8p.	2968	229	3197		Pacemaker 6					Cv. Cpe., DeL.	2447	226	2673	3831					
Wind. DeL. 6					Coupe, 3p.	1820				98									
Sedan, 4d, 6p.	2420	188	2608	3775	Brougham	1951				Holiday Cpe.	2378			3762					
Newport	2741	212	2953	3855	Club Coupe	1992				Hol. Sed., DeL.	2388	222	2610	3787					
Conv. Coupe	2850	221	3071	3990	Sedan, 4d.	1992				Hol. Cpe., DeL.	2639	243	2882	3857					
Saratoga 8					Conv. Brghm.	2464				Cv. Cpe., DeL.	2773	252	3025	4107					
Sedan, 4d, 6p.	2799	217	3016	4010	Super Six					<b>PACKARD</b>									
Club Coupe	2774	215	2989	3935	Brougham	2083				200									
Twn. and City	3418	264	3681	4345	Club Coupe	2129				Club Sed., 2d.	2278	197	2475	3610					
Sedan, 4d, 8p.	3632	280	3912		Sedan, 4d.	2129				Sedan, 4d.	2327	201	2528	3675					
New Yorker 8					Conv. Brghm.	2640													
Sedan, 4d, 6p.	3136	242	3378	4205	Holywd. Cpe.	2431													
Newport	3526	272	3798	4325	Commodore 6														
Conv. Coupe	3636	280	3916	4450	Club Coupe	2284													
Imperial 8					Sedan, 4d.	2307													
Club Coupe	3399	262	3661	4220	Conv. Brghm.	2811													
Sedan, 4d.	3411	263	3674	4315	Holywd. Cpe.	2593													
Newport	3753	289	4042	4365	Hornet 6														
Crown Imp. 8					Club Coupe	2368													
Sedan, 4d, 8p.	6124	449	6573	5360	Sedan, 4d.	2392													
Limousine	6233	457	6690	5450															

\*Prices do not include delivery and handling charges.



# PROFIT-CONSCIOUS BODY REPAIR SHOPS *Specify* **FOXCRAFT**



Model CH 418 L, CH 418 R



Model CHC 490 L, CHC 490 R



Model CHS 490 L, CHS 490 R



Model PL 40 L, PL 40 R



Model CDP 901 R, CDP 901 L



Model FD 49 R, FD 49 L, FD 50 L

## THE LINE FOR YOU IN '52

**Y**ES, body repair shops specify **FOXCRAFT** because they are designed to make **MORE CUSTOMERS** and **MORE PROFITS**. Exact, factory-like fit assures maximum speed in repairs at minimum labor costs. Foxcraft has the answer to almost any body repair problem... **SAVE TIME...SAVE LABOR...MAKE HAPPY CUSTOMERS...MAKE BETTER PROFITS...SPECIFY FOXCRAFT!**

Model CH 418 L, CH 418 R  
CHEVROLET REAR FENDER  
FITS ALL 1941-42-46-  
47-48 MODELS

Model CHC 490 L, CHC 490 R  
CHEVROLET REAR FENDER  
FITS 1949-50  
TWO-DOOR MODELS

Model CHS 490 L, CHS 490 R  
CHEVROLET REAR FENDER  
FITS 1949-50  
FOUR-DOOR MODELS

Model PL 40 L, PL 40 R  
PLYMOUTH REAR FENDER  
FITS ALL 1940 MODELS

Model CDP 901 R, CDP 901 L  
REAR PANEL, FOUR-DOOR  
SEDAN  
FITS 1949-50-51 CHEVROLET  
FLEETLINE  
1949-50-51 PONTIAC  
STREAMLINER  
1949-50 OLDSMOBILE  
"88"

MODEL FD 49 R, FD 49 L,  
FD 50 L  
FORD REAR FENDER  
SECTION FITS ALL  
1949-50-51 FORDS

Model PL 468 R, PL 468 L  
PLYMOUTH LOWER FRONT  
FENDER SECTION FITS ALL  
1946-47-48 PLYMOUTHs

Model CUB 428  
RADIATOR BAFFLE FITS  
1942-48 CHEVROLET UPPER  
RADIATOR BAFFLE

Model CLB 428  
RADIATOR BAFFLE FITS  
1942-48 CHEVROLET LOWER  
RADIATOR BAFFLE

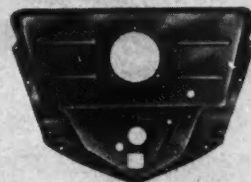
Model PL 41 L, PL 41 R  
PLYMOUTH REAR FENDER  
FITS ALL 1941 MODELS

Model CDP 902 R, CDP 902 L  
REAR PANEL, FOUR-DOOR  
SEDAN  
FITS 1949-50-51 CHEVROLET  
STYLELINE  
1949-50-51 PONTIAC  
CHIEFTAIN  
1949-50 OLDSMOBILE  
"88"

Model CWS 490 R, CWS 490 L  
1949-50 CHEVROLET REAR  
WHEEL SHIELD



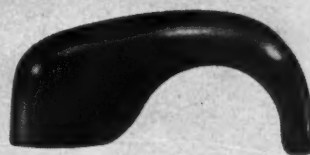
Model PL 468 R, PL 468 L



Model CUB 428



Model CLB 428



Model PL 41 L, PL 41 R



Model CDP 902 R, CDP 902 L



Model CWS 490 R, CWS 490 L

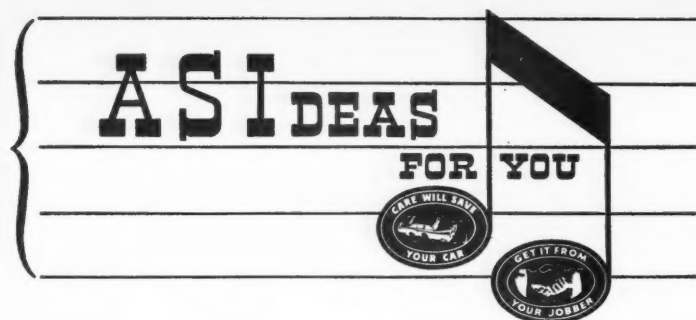
Write today for new **FOXCRAFT** wall chart

# FOXCRAFT

PRODUCTS  
DEPT. X

3235 N. 22nd STREET  
PHILADELPHIA 40, PA.

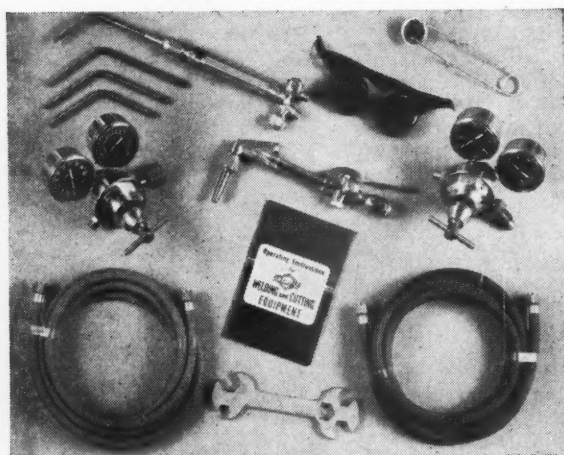




For further information use postcard on page 73

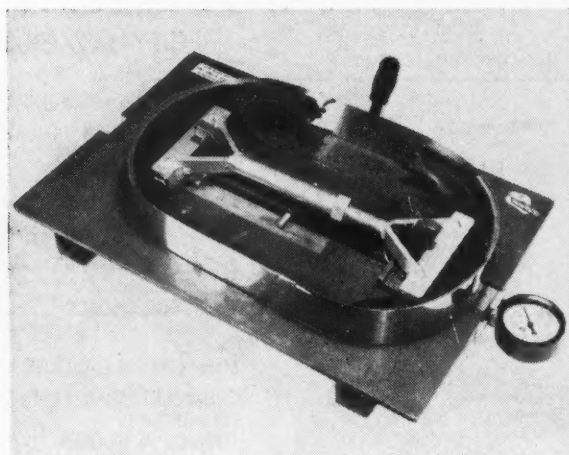
### ▼ 37. Bond Tester

**Dura-Bond, Inc.:** A new Bond Prover has been built into the Dura-Bond Hydraulic Pressure Bonding Table, to permit a quick shear test on bonded brake shoes. The strength of the bond is read in thousands of pounds on the same hydraulic pressure gauge that indicates the proper clamping pressure in the production bonding operation. This equipment is designed to provide shops with car manufacturers' methods of bonding, complete with a method of testing the quality of the bond.



### ▲ 35. Welding Outfit

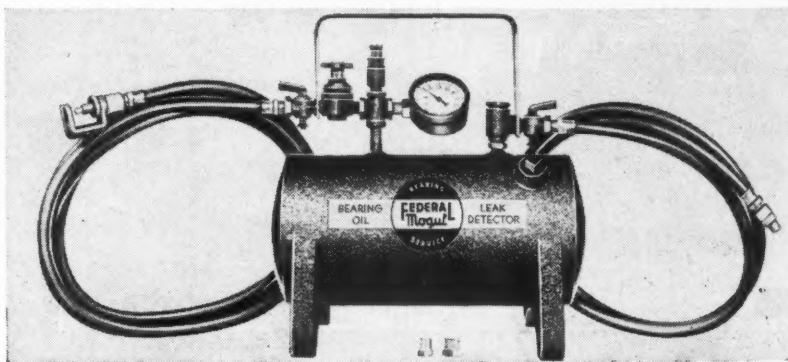
**Liquid Carbonic Corp.:** For general welding requirements, the Model WG-25-44 outfit is available from this firm. Included in the set is a gooseneck welding torch with four tips, oxygen regulator, acetylene regulator, one pair of goggles, two 12½ ft. lengths of ¼ inch hose with connections, one gas weld safety spark lighter and one combination wrench. It is also available with a cutting attachment and one cutting tip. The manufacturer states that the regulator is precision built for sensitive, fine adjustment. It is designed for both light cutting and welding.



### ▼ 36. Leak Detector

**Federal-Mogul Service:** Shop man can check pressure-lubricated engines for faulty bearings and other points of oil leakage with Federal-Mogul's engine bearing oil leak detector.

After dropping the pan, the detector is filled with oil and the air regulating valve is set at 25 lbs. pressure. The detector is connected between a compressed air supply and the engine and leakage is observed.





# FITZGERALD

Metallic Aluminum-Fused-Oxide Steel Asbestos

## GASKETS\*

# Rugged All ways



\* Service Mark Registration Pending



Combining strength and flexibility of specially soft-annealed steel . . . aluminum's resistance to rust and corrosion . . . and a filler of top quality asbestos . . . Fitzgerald gaskets give a *lasting* perfect seal under the tough punishment modern high compression engines deliver. Users who've ended a series of costly gasket failures by switching to Fitzgeralds swear by them. You will, too.

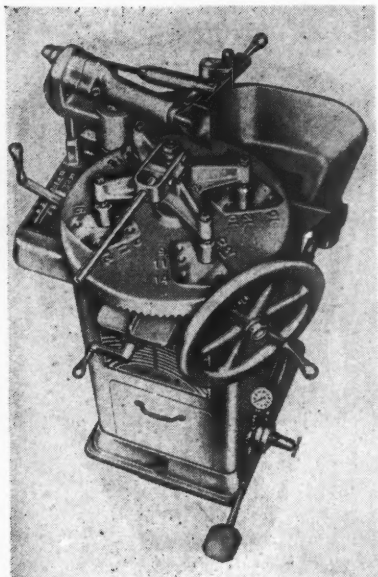
**THE FITZGERALD MANUFACTURING CO.**  
Torrington, Connecticut

Canadian Fitzgerald Ltd., Toronto, Canada • Branch and Warehouse, Los Angeles, California

Chilton's MOTOR AGE, JANUARY, 1952







### ▲ 38. Shoe Stripper

**Barrett Equipment Co.:** The Shu-Strip-R, a new machine for removing brake shoe lining is announced by Barrett. The manufacturer claims the Shu-Strip-R removes bonded lining at the rate of 150 shoes per hour—riveted lining at 200 shoes per hour. It handles all passenger car and light truck shoes 9 in. to 16 in. in diameter with up to 3½ in. face.

### ► 39. Repair Kit

**National Machine Works, Inc.:** The "All-In-One" Transmission and Drive Line Repair Kit makes a complete repair for most Chevrolet cars and pickups and most GMC pick-ups, according to its manufacturer. This kit saves discarding the transmission case, drive shaft and driveshaft housing.

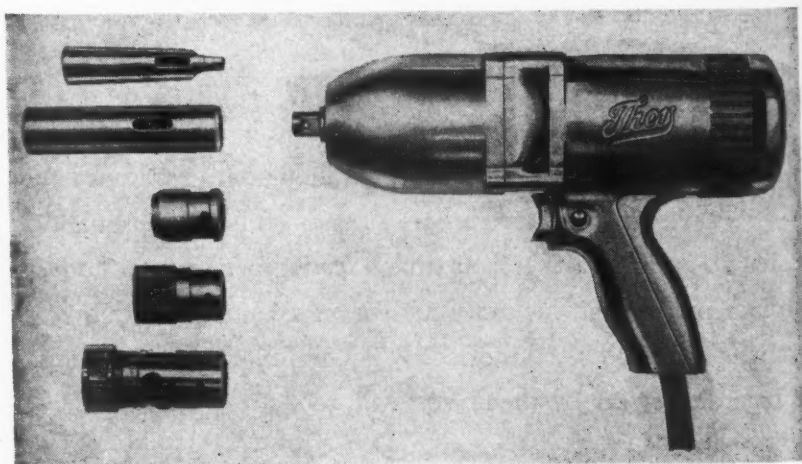
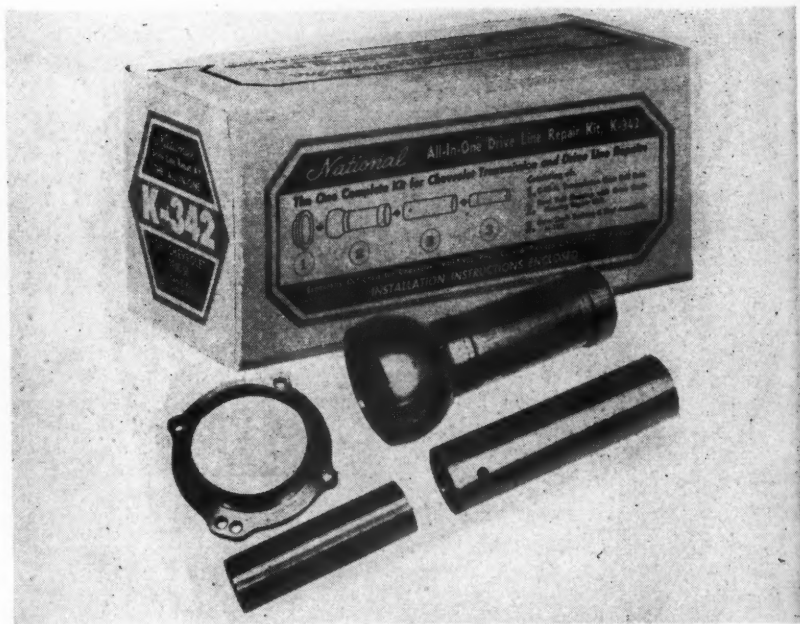
### ► 40. Impact Wrench

**Independent Pneumatic Tool Co.:** Included in the Thor Silver Line of impact wrenches is the EW-6, which has a ⅜ inch bolt size nut running capacity. The free speed forward or reverse is 2150 rpm. It provides 2,000 impacts per minute.

(Continued on page 104)



For further information use postcard on page 73





Allied  
A.P.C.

American  
Brakeblok

BRAKE LINING - CLUTCH FACINGS

BALKAMP

PARTS FOR FORD  
CHEVROLET - PLYMOUTH  
AND ALL POPULAR CARS

Belden

WIRE AND CABLE

BRIDGEPORT

FOR GRUBS & ACCESSORIES

BRIGGS

SMALL GASOLINE ENGINES

BROWN LIPE

GEAR BOXES

CELORON

TIMING GEARS

DETROIT

COMMERCIAL CARS

DITTMER

TRANSMISSION CLUTCH

DUCKWORTH

TIMING CHAINS

ECHLIN

IGNITION PARTS

FEDERAL

BALL BEARINGS

Allied  
GRAPHO

WATER PUMPS  
PARTS - PACKING

MARTIN-SENOUR

AUTOMOTIVE PARTS

MicroTest

GEAR - AXLE - SHAFTS

Modac

RAN BELT - JOBS  
RADIATOR HOSE

Monmouth

ENGINE BEARINGS  
CLUTCH PLATES & PARTS  
CHASSIS PARTS

New Britain

HAND TOOLS

Allied  
PRECISION

BRISTON BRUSH

PURITAN

BRISTLE TOOLS - PAINTING  
FLUID - MOCA - ABSORBENT  
OIL - GREASE - SEAL -  
HYDRO - LECTRIC - FLUID

RARITAN

POLLER BEARINGS

Allied  
RAYMOND

SALES SERVICE

Soundmaster

MUFFLERS

STANDARD

DRUMS - RETAINERS

Spicer

UNIVERSAL JOINTS

Thomson

TERMOPLASTIC

TRICO

TRUCK - AUTOMOTIVE  
SAFETY BRIDGES

UNITED

WIRE - CABLE  
HYDRAULIC BRAKE  
FREEDOM - CABLE  
WIRE CABLE

Allied  
WISCONSIN

PISTONS - RINGS

ZOLLNER

PARTS - EQUIPMENT

Your NAPA Jobber  
is a Good Man to Know!

## Any doubts? Here's proof:

Even in times like these, there are some things you can count on—for sure. One of them is what to expect when you make your NAPA Jobber your source for parts and supplies.

● **QUALITY PARTS:** "Equal to or surpassing in quality the parts they replace" . . . that statement of policy has governed every NAPA line since NAPA began.

● **BROAD COVERAGE:** The lines your NAPA Jobber stocks will meet the vast

majority of your requirements for cars and trucks of all makes and all ages.

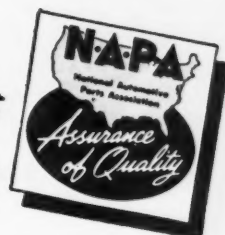
● **FAST SERVICE:** In addition to his own stocks, the NAPA Jobber commands master stocks of every line in the nearby NAPA Warehouse. Even rarely used numbers can be in your hands *fast*.

● **SELLING HELP:** Organized cataloging, strong national advertising in The Post and Collier's, powerful, practical display material . . . your NAPA Jobber offers them all, not on a single line or group of lines, but on *all* NAPA lines.

All these advantages become your advantages when you concentrate your purchases with your NAPA Jobber. Think about it. Call your NAPA Jobber *first*.

NATIONAL AUTOMOTIVE PARTS ASSOCIATION • DETROIT 1, MICHIGAN

**N.A.P.A.** is the largest  
Independent Parts Organization in the Industry!





For further information use postcard on page 73

## 41. Lube Hose

Lincoln Engineering Co.: Lincoln's new ceiling-type Lubreels are available in air-operated and spring-operated models. The air-operated models incorporate the following features: It is air operated. Air cylinder with Linpak piston furnishes power for hose retraction. Large sheaves that coil

hose evenly, and cylindrical rollers at the hose outlet are said to reduce frictional wear on hose to a minimum. An automatic Reel Latch provides positive locking action when reel-out is stopped. Air operated Safety Latch locks the reel when air pressure is turned off either at compressor or in air line.

**Look  
for  
this  
sign**



★ when you want

**finest welding and cutting equipment  
...dependable service and deliveries**

The local Airco dealer carries a complete line of Airco equipment and supplies. High-purity oxygen, acetylene and other gases . . . calcium carbide . . . gas cutting or welding machines and supplies . . . arc welders, electrodes and accessories . . . he'll deliver anything you need from stock, direct to your door. He's part of a nationwide Airco organization that has been set up to supply you promptly, regardless of your location.

So, remember, for all your oxyacetylene welding and cutting and arc welding needs, look for the Airco Authorized Dealer. You'll find him listed in your Classified Telephone Directory under *Welding Equipment and Supplies* today. He'll be glad to help you select the proper Airco equipment for any job.



**AIR REDUCTION**

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AIR REDUCTION PACIFIC COMPANY

REPRESENTED INTERNATIONALLY BY AIRCO COMPANY INTERNATIONAL

Divisions of Air Reduction Company, Incorporated

Offices in Principal Cities

## 42. Waterproofing

Krylon, Inc.: Nation-wide campaign has been launched to promote Krylon-izing, the waterproofing of automobile ignition systems with the company's sprayed-on Acrylic plastic, as part of routine Spring and Fall tune-ups. Krylon



is pointing out to car dealers, independent garage owners and service stations that Krylon-izing can be made a regular revenue-producing service. Note the Krylon-izing tag on which is dated the time of the last application and which serves to stimulate repeat business. Krylon is now packaged specifically for automotive use.

## 43. Electric Drills

Stanley Electric Tools: Two new electric 1/4 in. drills for heavy-duty drilling. Feature of these streamlined power drills include die-cast polished aluminum housing for lighter weight, trigger switch with safety locking device, sealed ball bearings, three-jaw geared chuck, and chuck guard.

(Continued on page 125)



"Guess I forgot to close the windows when I left."



# "GOT A MATCH?"



It's tough to strike the right match in black for spot or panel painting. It can be too light... it can be too dark.

But if it isn't right, I'm in for a lot of extra work. Believe me, I've got a match now! I use Martin-Senour special purpose black lacquers and enamels. That's the way to get the best match... the best coverage... the best adhesion and the best appearance. Do as I do: Count on Martin-Senour BLACKS and you'll be satisfied... and your customers will be too.



## MARTIN-SENOUR BLACKS ARE PERFECT FOR THE PURPOSE

**M-S 6069—Ultra Jet Black Lacquer**—High-quality, dense, black with fine natural lustre for use on all-over custom lacquer jobs or spot repair work on original lacquer finish.

**M-S 6081—Midnight Black Lacquer**—Economical for all-over custom jobs or spot repairing older cars.

**M-S 6092—Black Lacquer**—Dual purpose,

high gloss, non-lifting lacquer. It primes—it seals—it finishes!

**M-S 6100—Hi-Gloss Black Lacquer**—Beautiful for complete refinishing. Easy to use for spot repairing original baked enamel finish.

**M-S 8006—Black (Synthal) Enamel**—Finest black ever developed. For over-all or complete panel jobs. Brilliant, clean-cut lustre.



"Customer satisfaction is built right into Martin-Senour Blacks," says Lyman R. Boyd, Quality Chevrolet Co., Delta, Colo.

"We find that Martin-Senour Blacks meet all our requirements for match, density, fill and bril-

liance. That's true for every job from spot and panel repair to complete over-all refinishing."

Your N.A.P.A. Jobber has Martin-Senour Lacquer and Enamels

# MARTIN-SENOUR

2520 South Quarry Street, Chicago 8, Illinois

*Factory Packaging*... the only positive control from Factory to Finisher





and can be manufactured of zinc, aluminum, or magnesium. The present zinc carburetor weighs 7¼ lbs. and is 5½ in. high. The new model in zinc weighs 3¾ lbs. and is 4¾ in. high. Made of aluminum its weight is 2¼ lbs. and with magnesium only 1¾ lbs.

Of particular interest in the production field was the display

of magnesium die castings, thirteen of which are already in production and with two more slated to be adopted soon. The fifteen castings will replace castings weighing 100 lbs. with a saving of 75 lbs. in weight. Some of the castings are fairly large such as a torque converter housing and clutch housing. Other smaller

castings include steering column shroud, a pillar for the convertible top, oil filter body, oil pump body and cover, and an instrument panel cover and cluster ring.

Another development still in the experimental stage and included in the exhibit was the shell mold process for producing engine valves. The process requires only 25 operations prior to finished machining compared to 176 with the forging method.

Savings of critical metals may be made possible through a reduction in the length of the heater tube used to actuate the automatic choke. The tube is made of Inconel, which is 80 per cent nickel and 20 per cent chromium. Currently the tube extends inside the cast iron manifold, but in the experimental development the tube attaches to the manifold which has enlarged cast-in cavities which provide a heat reservoir.



**"Right There"**

CONTROL WITH DOLE

**RIGHT EVERYWHERE**

Original Equipment on Many Cars & Trucks

**DOLE D-V THERMOSTATS**

THE DOLE VALVE COMPANY • 1901-1941 Carroll Avenue, Chicago 12, Illinois • Representatives in Principal Cities

Put it there, men!—in the cooling system, as made clear and easy by the installation chart—and do this on car after car.

You'll find how thermostat profits add up, and satisfied customers become boosters for you.

There's a Dole DV to control motor temperature on all the modern pressure-cap systems—and also the 3-to-10-year old cars which promise a big active source of service jobs this year. DV's offer efficiency unaffected by pressures in open or sealed cooling systems—hence smooth performance, quick warm-up with savings of gasoline, oil and motor wear.

Make Thermostat Replacement Part of Every Cooling Systems Check-Up



Model DV1



An alternate method under study is to use a bolted-in choke heater at one end of the manifold but this is not as desirable as it would require some extra machining. With either method, the length of Inconel tubing is reduced by about one half.

A sizeable reduction in the number of parts in the pump of the power steering unit also is being effected. Considerable savings in both cost and weight result from elimination of 15 parts with sev-

(Continued on page 109)



# "BEST money can buy"

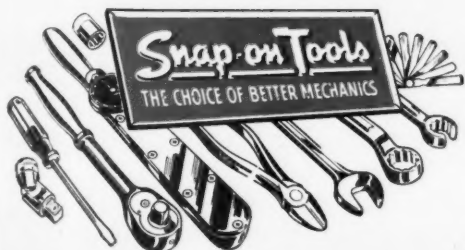


SERVICE MANAGER, B. G. SWEENEY

of Raymond Pearson, Ford Agency, Houston, Texas, and most of his men, have been Snap-on users for years. Says Mr. Sweeney, "we know from experience Snap-on Tools help mechanics do better work and earn more. They're the best money can buy."

## Snap-on<sup>\*</sup> Tools

Snap-on Tools are engineered for men who take pride in better work — and bigger earnings. They're true *automotive* tools. That's the blunt reason why Snap-ons are favorites with good mechanics everywhere. *Snap-on Service* brings your tools right to the shop, where a man can select them without wasting time . . . where he can pick the tools he wants — try them on the job — and *know* they're what he needs! That makes sense — saves time — saves money! Ask your Snap-on man for 104-page catalog of more than 4,000 Snap-on Tools—or write direct to the factory.



### SNAP-ON TOOLS CORPORATION

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\* Snap-on is the trademark of Snap-on Tools Corporation.

## Snap-on<sup>\*</sup> SERVICE

—through 800 trained, helpful  
Snap-on men, serve America's  
top mechanics,

*Coast to Coast*



Henry E. Bos  
San Francisco Branch



Bill Searcy  
Jacksonville Branch



Gary L. Beasley  
Atlanta Branch



Paul L. McDaniel  
Cincinnati Branch



George A. Whitney  
Baltimore Branch



Clayton E. Warren  
Boston Branch



John E. Maduro  
Buffalo Branch



B. C. Bobb  
Detroit Branch



Joe A. Actis  
Seattle Branch



Julius Herschowsky  
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I'll say the  
**Factory Fresh**  
Package  
sells fan belts!

"I'm Ty Abel, owner of Ty Abel Super Service at Wayzata, Minnesota. We've doubled our belt sales since we changed over to Durkee-Atwood *Factory Fresh* V-Belts last May.

"Things began to happen right after we put up those good-looking sealed packages. Customers noticed them, and asked about them. But what surprised me most was that all of us got belt-conscious. When a car came in, up would go the hood for a belt check-up. This routine inspection now sells better than a belt a day. Those *Factory Fresh* packages just keep reminding us that we're in the belt business."



This is a typical *Factory Fresh* success story. You, too, can have the cleanest, freshest stock of belts in town with Durkee-Atwood *Factory Fresh* V-Belts, in the plastic-sealed package

that protects and guarantees quality, provides complete specifications and handy cross-reference listings for your convenience in making installations. The Durkee-Atwood change-over program even provides a "beauty-treatment" for your old belt stocks. For complete details, fill in and mail the coupon at the bottom of the page!

Mail this coupon today!

Durkee-Atwood Co., Dept. MA-1, Minneapolis 13, Minn.

Gentlemen: I'm interested in a bigger, more profitable belt business. Tell me more about your *Factory Fresh* V-Belt program and its opportunities for me.

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

State \_\_\_\_\_

City \_\_\_\_\_

**DURKEE-ATWOOD  
COMPANY**

MINNEAPOLIS 13, MINNESOTA

MANUFACTURERS OF V-BELTS, RUBBER  
AND CHEMICAL PRODUCTS SINCE 1919



## Chrysler . . . .

Continued from Page 106

eral others redesigned to simplify manufacturing.

Another exhibit of considerable interest shows a new experimental flat type hydraulic valve tappet which is scheduled to be used in the new DeSoto engine. The design eliminates the ball check valve and requires one less piece. In addition, parts are much simpler and less expensive to manufacture and operation has been fully as good as with the more complicated ball check type.

Chrysler, like other companies, has been giving a lot of attention to reducing the amount of copper used and also to find a substitute for copper in radiators. It already has cut the amount of copper used in radiators by 23 per cent, by reducing the gage thickness of the tank, water courses, and core spacers. An aluminum radiator has been under test for several thousand miles, but some knotty problems still have to be licked before it can be considered for production use.

Chrysler already is using some applications of vaporized metal on plastic parts which formerly were chrome-plated zinc die castings. One application involves using a one piece clear plastic lens for accessory lights, with the outer rim coated on the underside with vaporized aluminum, in place of the two piece glass lens and metal bezel combination. Initial tests indicate that the clear plastic may be more permanent than the chrome zinc parts, particularly in resistance to salt corrosion. In addition, they are much lighter in weight and cost less. Plastic also is replacing metal parts such as the water pump impeller, ash receivers, battery trays, and stop and tail light connecting tubes. They are less fragile for these applications and provide better insulation, in some cases eliminate brass or neoprene parts, and are easier to assemble.

Several exhibits dealt with experimental projects in the ignition and lighting field. A new type phenolic resin experimental dis-

(Continued on page 110)



**PULL YOUR  
WINTER PROFITS UP  
WITH BOWES  
COMBUSTION AID!**



Here's a shot in the arm for those slumping winter sales!

Bowes COMBUSTION AID gives your customers quicker starting, smoother engine performance, absolute protection against frozen fuel lines. It absorbs the water in fuel lines, keeps them free from gums, softens and removes carbon. Sell WINTER DRIVING PROTECTION . . . sell BOWES COMBUSTION AID!

It's a swell repeater for YOU, too. One can protects ten gallons of gas; you will have customers coming back for COMBUSTION AID and for your other services. Keep sales and profits UP this winter with the famous, fast-selling Bowes "Seal Fast" line!

## **THERE'S ALSO A WINTER MARKET FOR TIRE AND TUBE REPAIR!**

Sure there's less driving in the winter . . . but tires and tubes take a tougher beating on icy, snowy streets. There's plenty of tire and tube repair business—if you're *ready* for it. Feature your Bowes LECTROSEAL—sell your customers *regular* tire inspection—with



Bowes tire repair service. Ask your Bowes "Seal Fast" distributor or write direct for details.

**BOWES "SEAL FAST" CORPORATION  
INDIANAPOLIS 7, INDIANA**



## Chrysler Experiments Continued from Page 109

tributor cap has much higher resistance to arcing damage than types currently in use. In accelerated tests, the new "alkyd" distributor cap withstands 15,000 volts for up to four hours before failure, compared with only a few seconds with conventional caps. Another interesting project is an experimental high-frequency dual-

coil ignition system. It includes the addition of a discharge gap and condenser at the input to the distributor and a step-up transformer in the spark plug connector. The result is a resonant circuit which gives a high frequency discharge at the plug, eliminating misfiring even at badly fouled plugs. Another project under de-

velopment involves replacing the conventional single circuit breaker in the lighting system with three circuit breakers inside the light switch. As a result in case of a short circuit, only the lights on the circuit which is shorted fail, leaving the other two circuits in operation.

Chrysler engineers also are working on new methods of sealing windows and windshields. Current practice on windshields and rear windows is to use a two piece strip using a locking bead. A new design has been developed with one-piece construction in which the locking strip is integral. A one-piece seal also is under development to replace the outside, inside, and glass channel seals with a one-piece unit which seals the window both outside and inside as well as the glass in the channel.

Also demonstrated at the display were four types of experimental brake drums designed for forced air cooling. They are cast aluminum with integral straight fins, cast aluminum with integral curved fins, cast iron with compression bonded fins, and cast iron with integral straight fins.



## AIRTEX Exclusive Core Credit Policy

**Extra Profit!**

All old fuel pump cores worth \$\$\$\$\$\$ on trade-in for new Airtex pumps

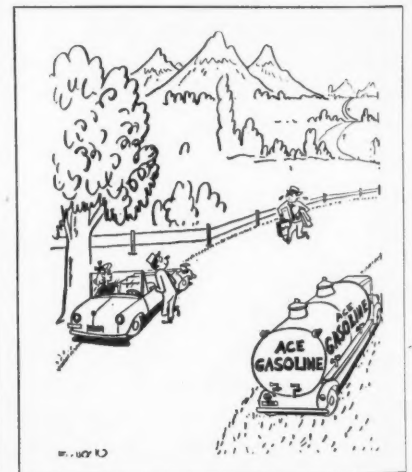


**Extra Appeal!**

Enables you to offer special bonus to car owners

TURN IN YOUR  
JUNK FUEL PUMPS TODAY AS  
TRADE-INS ON NEW AIRTEX FUEL PUMPS

AIRTEX AUTOMOTIVE DIVISION  
FAIRFIELD, ILL.  
*World's Largest Independent Fuel Pump Manufacturer*



### ICS Home Study Instruction On Automatic Transmissions

Three new lessons on automatic transmissions for mechanics and servicemen have been added to the standard Automobile and Automobile Technician courses offered by the International Correspondence Schools of Scranton, Pa., C. Ray Strouse, director of the I.C.S. School of Automobiles, has announced.





**CHOOSES**

*Boltaflex*

*Howard Zink seat covers trimmed in quilted Boltaflex Coronet pattern*

**This season Howard Zink is featuring both solid and quilted Boltaflex patterns on their famous seat covers**

Here's a combination that will give you the business . . . top-quality nationally known *Zink* seat covers trimmed with famous solid and quilted *Boltaflex*. It's a best selling team. The patterns are new . . . the colors are eye-catching . . . the names are known the nation over. You can cash in on this combination as never before!

Of course, the magnificent Bolta-Quilt patterns are made with *heavy-weight, automotive-grade Boltaflex*. They're rugged and washable; they resist staining and fading; and the colors make *any* car look like a million.

Give the play to seat covers trimmed with Boltaflex for greater sales. We'll send you all the sales helps you need. Write Box 124.

**BOLTA PRODUCTS SALES, INC.**

Lawrence, Massachusetts

*Branch Offices and Warehouses:* New York, 45 West 34th St.; Chicago, Space 211 American Furniture Mart; High Point, N. C., 513 English St.; Los Angeles, 3544 East Olympic Blvd.; Cleveland, Ohio, 7306 Wade Park Ave.; Miami, Fla., 121 N. East 9th St.

**QUILTED** *Boltaflex*  
(BOLTA-QUILT)

The finest all-plastic covering material





# Pop O'Neill . . . . . Continued from Page 61

that you're a pretty good repair man. I'd like to get a tune-up, if I could."

"Certainly Mr. Maxwell," said Pop shaking hands. "Glad you came to us. We'll be glad to take care of it for you. It certainly sounds rough all right," he agreed as the engine was still idling.

"Tune-up," thought Tommy to

himself. "Sounds like a horse walking up the street. That car needs an overhaul if I ever heard one. But to Tommy's utter astonishment Pop made absolutely no move to sell the man anything more than a tune-up.

"Mr. Maxwell," said Pop, "I'm sorry to have to run off like this, but I have an appointment downtown this morning which I can't be

late for. I'd like you to meet Larry Tait who'll work on your car."

As Larry came up, Pop made the introductions then held out his hand again to Mr. Maxwell. "Larry will be doing the work on this car, and I'm sure you'd like to talk to him a bit." He held out his hand again. "Goodbye Sir," he said, "and welcome to Glenrock. I'm sure you'll enjoy living here."

Before Pop was out of sight down the street, Larry had the car in the back room and had lifted the hood. He too had made no mention of the poor condition of the engine as yet.

"My golly," thought Tommy to himself. "Things certainly are getting backward around here. I could have sold that man a valve job ten minutes ago." But Larry lifted the hood and started the engine. He let it run for a few minutes, then called Mr. Maxwell over.

"Do you hear that knocking noise," he said. "That is very probably rod bearings and that clatter—that's definitely valves. When did you have a major engine job last?"

"Well," Mr. Maxwell answered, "I never have had the head off this engine. It's been a mighty good car."

"It certainly has," agreed Larry. "And it's got a good many more miles in it too. But in my opinion you'd be wise to let us overhaul it."

"Overhaul!" exclaimed Mr. Maxwell, "I thought this was a reputable outfit. All I came in here for was a tune-up!"

"Sure," said Larry, "we can sell you a tune-up. We'll do a good job

(Continued on page 114)

*When you need*  
**KING BOLT SETS**  
**STEERING SECTOR SETS**  
**WATER PUMPS**  
**SPRING SHACKLE SETS ..**

*think*  
**Wohler**

**Wohler Corporation**  
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**MANUFACTURERS OF**  
**HUNDREDS OF SUCCESSFUL PARTS**

GET IT FROM  
  
 YOUR JOBBER







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on hillsides

**31" off the ground, and not a quiver!**  
**SAF-LIFT has double-support**  
**where it counts most!**

Unique two-legged construction of AUSCO's Saf-Lift assures the steady, safe foundation that car owners look for in a bumper jack. Its high lifting range of 31" is ample, even for low-slung cars. One-piece design is also a boon to motorists...no parts to assemble, no handle to get lost. Folds into small package that takes up minimum of space. Its safety, simplicity and ease of operation make Saf-Lift the car-owners' "Dream Jack"—when they see it, they want it! Write for latest catalog.

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**AUSCO SAF-LIFT**

**BUMPER JACK**

models for car owner and service use



too. But that would be the dishonest thing to do because I'd tune your car and it would give you improved performance for a while then you'd be back for another one. In no time at all we'd take more away from you in little bills than we'd ever get by doing an honest-to-goodness job right now. We're not fly-by-nights. This shop has

been here a good many years, and both Pop and I pride ourselves on our reputation in this town. We live here and we like the cars which people know we service to run right and to sound right. And our customers are satisfied customers. In my opinion as your mechanic, this engine is ready for an overhaul, and I should pull the head and take a

look at it. However, you're the boss and if you want me just to give it a tune-up I'll give it the best tune-up your car ever had." He smiled and Mr. Maxwell smiled back.

"Well," he said uncertainly, "I didn't mean to get an overhaul when I came in."

"Of course not," grinned Larry, "and when I go to the dentist I don't mean to get my teeth filled either. But every once in a while the dentist tells me it's time to have 'em filled and he fills 'em."

"Well I guess after seventy-two thousand miles you're right. Go ahead, I'll take the chance."

"Actually," Larry grinned at him, "you're taking less chance than if you had us do a lot of little jobs and let the overhaul go. This way we'll really fix your engine and you'll have trouble free performance again." He wrote out the job order and gave Mr. Maxwell Chilton Flat Rate price for the job. Then arranged a time which would be satisfactory for the work to be done.



Young Tommy had been an interested observer of the whole proceedings but had apparently busied himself at odd jobs around the shop.

When Mr. Maxwell left, he turned to Larry, "By golly," he said, "you sure made that sale."

"Sure," said Larry, "that's part of my job."

"Part of your job," exclaimed Tommy, "I thought you were a mechanic?"

"I am," said Larry, "and I intend to remain a mechanic. But if Pop doesn't make money, there's no  
(Continued on page 118)

**MR. SERVICE MAN . . .**

# STOP

**SLIPPING ACCIDENTS  
COSTLY MAINTENANCE  
DIRTY HOUSEKEEPING**

With the regular use of



**ABSORBENT**




- A small amount of OIL-DRI spread on grease and oil spots on floors, driveways, showroom floors, repair departments and pits, will completely absorb all dirty and dangerous oil and grease accumulations.
- Experienced garage and service station men everywhere agree upon the systematic use of OIL-DRI as the ideal, economical way to keep floors DRY . . . SAFE . . . CLEAN . . .
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*For the man who wants the best*

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**GROOVES**

*Cleans*

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ASBESTOS BRAKE LINING FOR EVERY PURPOSE . . . MOULDED ASBESTOS FRICTIONS—ALL SHAPES AND SIZES . . . MOULDED FABRIC BEARINGS SERVING ALL INDUSTRIES . . . ASBESTOS TEXTILES  
Factories at Warsaw, Indiana and North Brookfield, Massachusetts

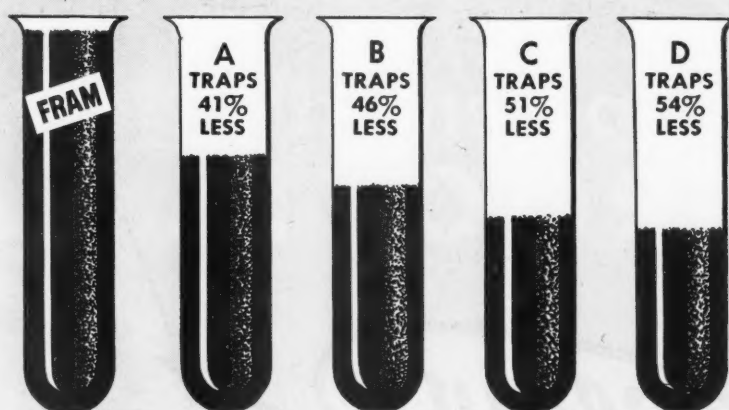


# Here's the Proof: **FRAM FILTERS BEST**

## In actual tests **FRAM Cartridges** out-perform all other popular brands tested

Yes, in identical tests under strictest laboratory conditions, Fram Cartridges removed more dirt, and removed it faster, than all other popular brands tested. The chart at right shows the results at a glance. So here is proof positive that **FRAM FILTERS BEST!** Remember it . . . it's important to your customers' cars . . . it's vital to your sales.

Actual Laboratory Tests Prove:  
*Fram Traps More Dirt than all other popular brands tested!*



**Yes, conclusive proof that Fram Filters Best!**

## And **FRAM Cartridges** are custom-engineered for every filtering job

Today's modern engines have specialized lubricating systems that require specialized filtration. No single cartridge can fit every requirement and do the job right. Some engines have *by-pass* filters. Others use full-flow filters. And because the basic principles of these two methods are different, cartridges for these filters must be of different design for top efficiency. That's why Fram specially designs cartridges for every job. And this Fram custom-engineering is another reason why *Fram Filters Best!*





# Here's the Proof: **FRAM SELLS BEST**

**Now you can pass on to your customers  
this absolute proof that your line of FRAM  
Cartridges is the best in the world!**



This great story of *proven* quality can help you build your FRAM Filter and Cartridge business to heights you never dreamed of! Make sure you tell every customer who comes in about this conclusive, scientific proof . . . and watch your cartridge profits Grow!

**Ask your Distributor  
Salesman to show you  
"FILTER FACTS"**

This revealing book explains in full detail the different methods of filtration . . . explodes false claims . . . offers additional proof that **FRAM FILTERS BEST!**

## Cash in on Operator 25

Intensive national advertising and more than 200 giant billboards all over the country are telling motorists to phone Western Union Operator 25 for the name of their Fram Dealer. Get your share of these calls. Make your share of Fram sales and profits. Cash in on the hottest money-making proposition in the industry. Sign up now as a Fram Dealer!



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**FRAM**  
OIL • AIR • FUEL • WATER  
**FILTERS**



job for me. I ain't so good on the out front stuff but I do know that when a car needs work, it ought to have that work done and there ain't nothin' that says I shouldn't tell the driver so either."

When Pop came back from town, he cast an admiring glance around the office. "By golly, Tommy you really earned your pay this morn-

ing. This looks fine."

Tommy beamed, "I'm certainly glad you like it Pop. Say I've had an idea. How about putting a table up against that blank wall there and on it I could put some of the accessories which are quick turn-overs. Maybe we could pick up a few sales from the people who are sitting here waiting for their cars,

or who just come in to talk. After all there's quite a few items in our line that people would buy if they could only see them."

Pop looked at the wall, pursed his lips, and thought a minute. Finally he nodded, "That's a good idea, Tommy. I don't see why we didn't do that years ago. But," he added with a grin, "don't forget that dusty goods don't sell. One of us lucky fellows is going to have to keep that display neat and clean."

"Oh sure," agreed Tommy, "it won't be much trouble at all, after I get used to it. Just part of the routine. After all," he grinned, "I have to be here from eight 'til six anyway."

"Well if it works out," Pop promised "all of us will benefit by the increased sales."

"Say Pop," Tommy put in suddenly, thinking the time was as appropriate as any could be, "I've got a minor criticism to make of my boss."

"Okay," said Pop seriously. "Shoot."

"It's just this," said Tommy. "He tells me one thing, then he does another."

"How so," said Pop, "that's a serious charge."

"Well," said Tommy, "this morning you gave me a long talk on the importance of sales and how to make them. Then the very first customer comes in. You take a look at him; shake hands with him, and give him a quick brush-off."

"Only partly true," Pop agreed, tapping his finger-tips together as a judge might do in a court. "I sold that man an overhaul job."

"Pop O'Neill!" said Tommy, "You did not. You let him go with a tune-up; brushed him off to Larry and went off downtown."

Pop grinned. "Sure," he said, "I went off downtown and Larry sold him a complete overhaul."

"How did you know?" said Tommy. "Maybe I sold it to him."

Pop shook his head, "You've learned a lot since you've been here Tommy, but perhaps we've been concentrating a little too much on making you into a mechanic and not quite enough in making you into an independent repair shop operator. This is a small shop and that man

(Continued on page 122)

**BURD**...FAITHFUL  
*for more than 25 years*

**FRIEND OF  
JOHN DEERE  
CUSTOMERS**



New JOHN DEERE MODEL "B" TRACTOR  
—an ideal general purpose tractor.

Right from the start of the farm tractor industry, Burd Piston Rings have successfully met the rugged requirements of leading tractor manufacturers.

A typical example of this dependable reputation is John Deere's use of Burd Piston Rings for twenty-five years as original equipment. It is a reputation that could only be earned by experience—specialized experience in engineering, in production, and in the proper application of piston rings for heavy duty farm tractor service.

You can always depend upon Burd Piston Rings to meet the most rigid standards established by the farm equipment and automotive industries.

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**BURD**  
GRAFFLUX  
**PISTON RINGS**

LEADERS IN AUTOMOTIVE, FARM EQUIPMENT,  
AND INDUSTRIAL PISTON RINGS SINCE 1914



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One of the 17 superior features of the Columbus Luxury-ride Shock Absorber is the *exclusive* Thermo Ring which expands and contracts in direct ratio to extremes of hot and cold temperatures. It thermostatically provides proper flow of fluid under all temperature conditions. Cars that ride like coal trucks when the weather hits below zero float as on velvet when Columbus equipped. *Prove it to yourself; install a set on your own car today. It's the best shock absorber in the world!*



GUARANTEED  
1 YEAR  
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MILES

**Stock up Now for Increased  
Winter and Spring Demands**

**"The Shock Absorber that Outsmarts the Highways"**



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# WAGNER LOCKHEED



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# Wagner

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You've got the best for yourself—and your customers—when you have Wagner Lockheed Hydraulic Brake Fluid. This popular brand is *first* in use, *first* in sales, and *first* in acceptance. It has been the "STANDARD of QUALITY" for 28 consecutive years. It's *chemically BALANCED* for maximum efficiency under all driving conditions.

Wagner Lockheed is an all-season fluid. It does not corrode or rust the system, does not cause the cups or hose to swell, does not form any gummy residue, and does not evaporate rapidly.

Wagner Lockheed Hydraulic Brake Fluid is a safe, dependable fluid that you can use and recommend with full confidence. Available in 12 oz., quart, gallon, 5 gallon, 30 gallon and 54 gallon containers.

You can depend upon Wagner quality because Wagner products are used as original equipment by automobile, truck, and trailer manufacturers.

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name in brake service

Please send me the latest Bulletins on Hydraulic  
Brake Servicing—HU-17H, HU-197.

NAME \_\_\_\_\_

FIRM NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_

STATE \_\_\_\_\_



TACHOGRAPH • ELECTRIC MOTORS • TRANSFORMERS

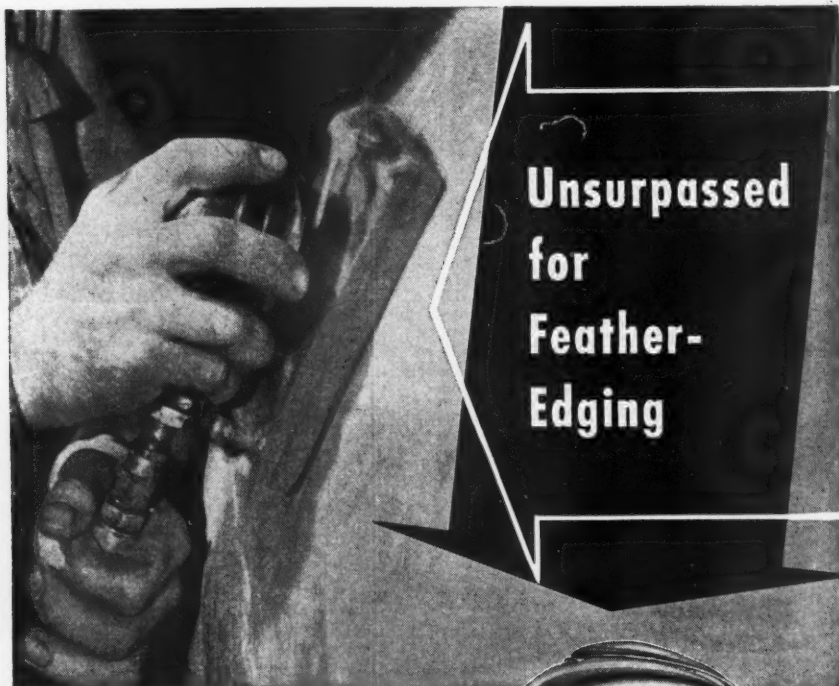
INDUSTRIAL CRANE BRIDGE BRAKES



## Pop O'Neill . . . . . Continued from Page 118

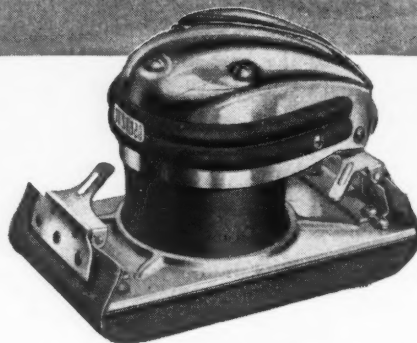
came in to give us his business. When he met me for the first time, he saw what he didn't expect to find. An independent repair shop owner dressed up in good clothes, a white shirt and tie, at ten o'clock on a Thursday morning. If I do say so myself, Tommy, I had sort of a too-prosperous look about me, and I obviously wasn't interested in

working. At the moment he was against me because I wasn't the type of man he had been led to believe I would be. But he did know this shop had a reputation for good work. Consequently when I turned him over to Larry Tait as the man who would really fix his car, he already had in his mind that Larry was a first class mechanic.



### NATIONAL Model 400

"Mity-Midget"



Feather-edging . . . ordinarily it's a slow, tiresome, touchy job . . . but with National's Mity-Midget it is fast and easy. This convenient, air driven block sander weighs only 4 pounds. It fits the hand comfortably, and because it is vibrationless, can be used for hours without tiring the operator. Making 4000 to 6000 orbital strokes per minute, it cuts sanding time to a minimum, and allows you to finish more jobs per day. Write for details.



Or See Your Jobber

**NATIONAL AIR SANDER, INC.**  
2820 AUBURN ST., ROCKFORD, ILLINOIS

"Larry has worked for me for a good many years and I knew that he would tell immediately that that car needed an overhaul. He would do his best to see that that car was fixed before it left. Larry sold the overhaul which I probably couldn't have sold at the time. We will do a good job on it, and we'll have a satisfied customer. Don't ever forget Tommy, you don't just sell things. You have to sell things to people and before you can sell things to people you have to try and understand people."

Tommy nodded. "I see what you mean," he agreed, "I suppose that's the reason some independents make a good living and some go bankrupt."

"Not bad," said Pop. "Of course, you can't always please everyone no matter how you try," "My brother-in-law's a prize example of that. His wife's the worst nagger you ever saw. On his last birthday she left his present, two neckties, on his dresser and went down to cook breakfast. He looked at the two nightmares then reached for a tie off his rack. But he thought better of it and just to keep peace he finally put on one of those things she'd bought him. Feelin' like the world's best psychologist he went into the kitchen. She took one look at him and snapped, "So you don't like the other one, hey?"

"Well a woman like that you'll never make a satisfied customer out of, Tommy." He paused a minute then continued, "But thank goodness the world's not all made of women, Son."





this new Golden "Bear" gives you the Perfect Answers to  
**BIGGER BALANCING PROFITS:**

*New "Perfect"*

STATIC and  
 DY-NAMIC

## "BEAR" WHEEL BALANCER!

takes out the "WIGGLE"  
 as well as the "BOUNCE"!

shows WHERE and HOW MUCH!  
 Dramatic Spark Dial shows where to put  
 weights—big, easy-to-read meter shows  
 exact amount of un-balance in fractions  
 of ounce.

uncovers HIDDEN PROFITS!  
 Gets the wheel off to uncover  
 brake drum and lining jobs,  
 spindles, bearings, etc.

gets an EXTRA 20% PROFIT!  
 Balances all five wheels!

compensates for TIRE SIZES!  
 New electric tuning dial assures accuracy!

speeds up to 100 MPH!  
 New indicator dial shows speeds.

See your "Bear" Jobber for the "Perfect" details  
 or write for new "Perfect" 36 Data Sheet TODAY!  
 BEAR MFG. CO., Dept. M-1, Rock Island, Illinois.

Do the Job RIGHT!  
 take out the "WIGGLE" as well  
 as the "BOUNCE" with the

**Golden "BEAR"** *Perfect*



Y5681



# Miracle Power Sales



PREVENTS "Engine Ulcers"...



# Practically Triple!

Miracle Power sales almost tripled in 1951—and Miracle Power users know why. They know that Miracle Power contains colloidal synthetic graphite in suspension. And they know that this special graphite protects engine parts . . . reduces repairs . . . improves performance . . . saves gas and oil.

In 1952, demand for Miracle Power will be boosted still more by greatly expanded advertising in such consumer publications as—

Post • Collier's • True • Popular Science  
Popular Mechanics • Mechanics Illustrated  
Hot Rod • Motor Trend • Farm Journal  
Country Gentlemen

PLUS

Radio • Television • Newspapers • Billboards

That's why we say—Cash in with Miracle Power in '52!

**AP** *Miracle Power Division*  
**THE PARTS CORPORATION**  
1531 AP Building • TOLEDO 1, OHIO

Manufacturers of: MUFFLERS • PIPES • MIRACLE POWER • dgf 123



## AS Ideas . . . Continued from Page 104

For further information use postcard on page 73

### 44. Crankshaft Journal Grinder

Postma Mfg. Co.: For truing out-of-round or damaged crankshaft journals without removing engine the Postma Mfg. Co. markets a tool under name of "Journalizer." Crankpins which are ordinarily inaccessible such as #1 on most cars and trucks and others situated behind chassis members axles front drive units, etc., can be trued without dismantling



the engine other than removal of spark plugs and oil pan. Accuracy is achieved through the use of the connecting rod and piston which retains "Journalizer" in alignment during the truing operation. The tool consists of a pair of retainer shells into which replaceable Aluminous Oxide abrading elements are fixed. These shells are inserted into connecting rod bore in place of engine bearing which is first removed. Engine is then rotated by means of starter motor to effect honing action. "Universal Kit" of five tool sizes will service passenger car field and most trucks (excepting Ford V8).

### 45. Magnetic Trouble Light

Standard Portable Cord Division, Lincoln Park Industries, Inc.: The Magic Lite is provided with a permanent Alnico V magnetic base which permits the light to be attached to any ferrous surface. The Magic Lite also introduces a swing open guard that allows bulbs to be changed without the necessity of removing clamps or screws. A universal ball swivel joint permits the light to be turned in all directions.

### 46. Tubeless Safety Tire

Firestone Tire & Rubber Co.: A new tire designed to eliminate hazards from any kind of tire failure has been developed by The Firestone Tire & Rubber Company. The tire is blowout-safe, puncture-proof and tubeless, the firm reports.

It is constructed so in the event the tire wall blows out the inner diaphragm automatically retains the great bulk of the air. The diaphragm is a removable inner lining that fits inside the casing and divides it into two air chambers.

(Continued on page 126)

CAUSED BY DRY STARTING



A  
NEW KIND  
OF DRIVING  
EASE

*No more unintentional rolling*

... on hills ... in traffic ... at lights ... in parking



It's easier to drive any car when it's equipped with an AUTOSTOP. You stop the car with the brake, touch with your thumb the Magic Switch on the gearshift lever, and your car stays where it is until you step on the gas!

No more need for that tiny touch on the accelerator — or "slipping" the clutch — to keep the car from rolling back. No more s-t-r-e-t-c-h-i-n-g out for minutes at a time to hold the car from rolling either backward or forward. Let the AUTOSTOP take the strain!

### A wonderfully simple accessory

The AUTOSTOP has four major parts: a cylinder added to the brake system, a relay usually mounted on the fire wall, an "on" switch on the gearshift lever that holds the car where you braked it to a stop, and an "off" switch on the throttle rod that automatically releases the brakes. It's easy to install and it's foolproof. Your customers will thank you for suggesting this new accessory at only \$24.95 plus your installation time.

Send for your free kit of AUTOSTOP selling helps. Here's what you get:

### FREE SALES HELPS

1. Brilliant banner for showrooms and service floor.
2. 3-color illustrated folders for mailing or as counter give-away piece.
3. Mailing cards with a return card setting up a time to install an AUTOSTOP.
4. AUTOSTOP newspaper advertisements.
5. Price-discount sheet.
6. Installation instructions.

Wico has meant dependable  
Automotive Accessories since 1897

**WICO** Autostop

**WICO ELECTRIC CO., 74 Phelon Ave., W. Springfield, Mass.**

Please send me your kit, including free advertising materials on the AUTOSTOP.

NAME.....  
(please print)

FIRM.....

STREET.....

CITY..... STATE.....

## AS Ideas . . . .

Continued from Page 125

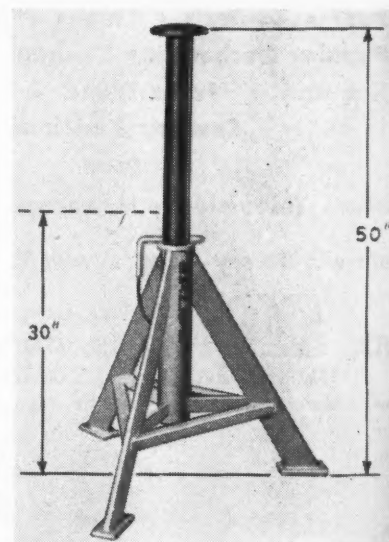
For further information use postcard  
on page 73

### 47. Paint Matcher

The American Lacquer Solvents Company: A complete line of color matching equipment for shops, jobbers and distributors is announced by this firm. The Col- oramic Precision Matcher combines convenient storage of tinting colors with the precision of measurement by weight, claimed to be accurate to one part in four thousand. The Master Color Book contains color cards and mixing formulas for all U. S. cars and trucks from 1941 to current models. Smaller power or hand operated color matching equipment is also supplied.

### 48. Truck Trestle

Manley Division of American Chain and Cable Co.: For use anywhere that heavy loads are to be supported, this Manley Trestle is a 90 lb. tripod of steel, reinforced at all joints and stress



areas. Low height of 30 in. and high height of 50 in. make the trestle suitable for removing wheels from farm equipment, storing industrial materials and the repair and building of trucks and trailers.

### 49. Governors

King-Seeley Corporation: A new universal key type Governor Ac-  
(Continued on page 130)



# What do THE CURNENS of Yonkers, N. Y. look for in automotive service?



**MRS. MARY CURNEN** says, "I have some very definite things in mind when I select an automotive dealer, especially away from home. Clean rest rooms, of course—and I'd like them out in the front, not around back. The dealer's place should be easy to drive into and, particularly when the children are along, have a soda dispenser."

**MR. FRANK "BUD" CURNEN** says, "I like the dealer I'm using now, because I can charge things, and because they always do such a thorough wash job. When I'm on the road and need repairs or parts, I pick a well-lighted place that looks respectable, a place where I think that I'm not going to be overcharged because I'm a stranger."



**THE CURNEN FAMILY** lives at 94 St. James Terrace, Yonkers, N. Y. They bought a Chevrolet station wagon just about 11 months ago; have put more than 11,000 miles on it already.

**"Speaking of price,"** Bud Curnen said further, "I'm always easier to convince that the price is right when I recognize the brand of the battery or the part replaced. When a well-known brand is used, I know that I'm getting my money's worth."

"What's a well-known brand? In our house, it's one advertised in *The Saturday Evening Post*, our favorite magazine."

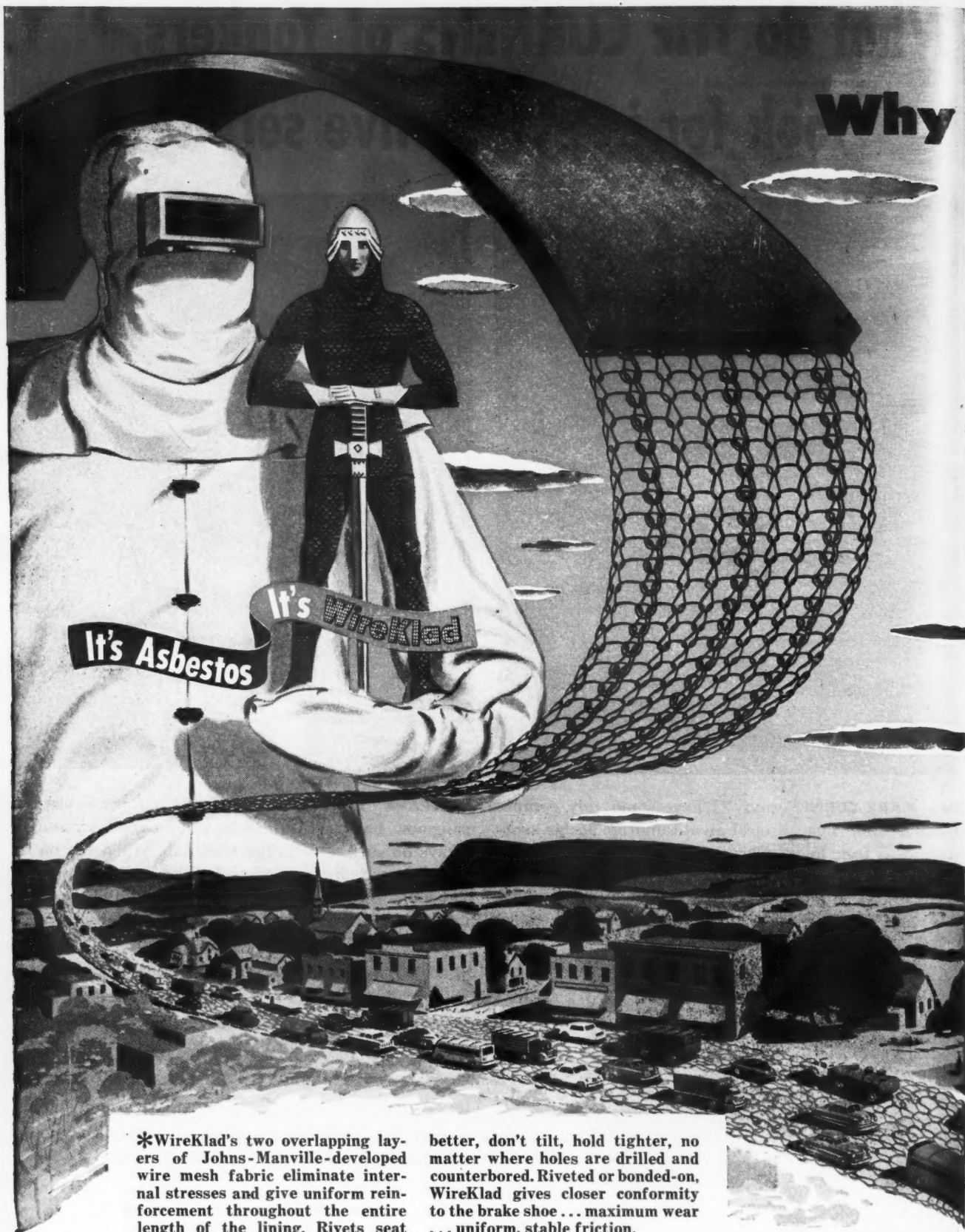
The Curnens are typical of millions of *Post* families who are pre-sold on products advertised in the *Post*. No wonder *Post*-advertised lines are your fastest-selling lines... no wonder the *Post* carries more automotive advertising to more people than any other magazine!



-gets to the  
heart of America



**Why**



\*WireKlad's two overlapping layers of Johns-Manville-developed wire mesh fabric eliminate internal stresses and give uniform reinforcement throughout the entire length of the lining. Rivets seat

better, don't tilt, hold tighter, no matter where holes are drilled and counterbored. Riveted or bonded-on, WireKlad gives closer conformity to the brake shoe ... maximum wear ... uniform, stable friction.



**Johns-Manville** *asbestos*



# Johns-Manville WireKlad<sup>\*</sup>

## Asbestos Brake Lining

### has become "the talk of the trade"

The development of WireKlad is an excellent example of what you can continue to expect from Johns-Manville's extensive research facilities, and its leadership through more than 90 years' experience as the world's largest manufacturer of asbestos products.

WIREKLAD—with its revolutionary new wire-reinforcement—takes a rightful place among other renowned developments pioneered by Johns-Manville . . . such as the *first* molded brake lining . . . the *first* precision resin-bonded clutch facing . . . the *first* asbestos-metallic brake block.

As with these, and many other famous Johns-Manville "Firsts" which date back to the early days of the automobile, WireKlad marks another outstanding contribution to the automotive field.

Jobbers and dealers across the country have found that there is a Johns-Manville friction material to meet every requirement of the automotive trade for brake and clutch friction products that help build volume sales and satisfied customers.

Throughout the complete Johns-Manville Line of Friction Materials whether it be Four Star Sets that are custom-made for each car, Fleet Tested

Sets for taxicabs and commercial vehicles, Molded Brake Blocks for heavy duty use on

trucks and buses, or WireKlad . . . J-M Friction Materials are recognized and accepted as the standard of safety and performance.

—And now Johns-Manville offers a complete BRAKE SHOE EXCHANGE SERVICE with depots strategically located throughout the country

The new, expanded Johns-Manville Brake Shoe Exchange service offers an even greater opportunity to jobbers and their dealers to build new sales outlets and greater profits! Providing a ready source of completely reconditioned and relined brake shoes, dealers can now offer fast efficient service without carrying large inventories.

Under this program you are always sure of the best materials applied by skilled mechanics under careful inspection and ideal factory conditions. This new Johns-Manville service is fast, economical . . . insures a better job for both riveted-on and bonded-on linings.

—Johns-Manville supports your selling efforts with intensive nation-wide customer promotion to your customers . . . week after week!

In times like these the dependability of your sources of supply is more important than ever. It will pay you to understand the many advantages the Johns-Manville Franchise has to offer. Write today for full details. Address: Johns-Manville, Box 290, New York 16, New York.

#### J-M 4-Star Sets

"Custom made" for all popular passenger cars. Proved in the laboratory and on the road. Balanced friction to match action and drum material . . . for safer, smoother stops.

#### J-M Clutch Facings

A complete line of smooth-acting, long-wearing facings for every type of service . . . precision-molded resin-bonded J-M STM Facings; "cushion"-action J-M Spiral Wound Facings; hard, dense J-M Molded Facings.

#### J-M Fleet Tested

For medium and light commercial vehicles. "Fleet tested" in actual service on many of the nation's busiest fleets . . . your guarantee of top performance.

#### J-M Brake Blocks

Exceptionally high heat-resistance, built-in. Available for high, medium, or low friction service. Molded to fit standard brake shoes.

# FRICITION MATERIALS



For further information use postcard on page 73

cessory Package has a lock barrel which can be quickly assembled to any Handy Vari-Speed Governor model, converting it from a seal type to a key type unit in a matter of minutes. The lock barrel has been designed to preserve the Vari-Speed Governor advantage of combination wrench internal adjustment of speed and

regulation sharpness. Handy Vari-Speed Governors, seal or key type, provide engine speed protection for all make of trucks.

## 50. Rebushing Kit

Zenith Carburetor Division: A fixture for holding the throttle body casting of a carburetor while

counterboring it for the installation of repair bushings is available from Zenith. With this tool, Zenith Part No. C166-48, a mechanic can rebush a worn throttle body by following the instructions furnished. Special reamers are also available.

## 51. Crankcase Ventilator

Oildex Sales Co.: The Oildex draws blowby vapors from the crankcase before they condense in motor oil, thus reducing oil contamination. Vapors pass through

### Simplify Routine Jobs with These

# 3

## SERVICE TOOLS

### BY Edelmänn



**No. 79 "SOFTIE" BATTERY FILLER**

Reaches into narrow spaces between hood and battery. Semi-flexible, soft rubber stem bends to pressure, springs back when pressure is removed. Won't chip or break; protects battery plates from injury. Holds 6 fluid ounces.



**No. 74C "HIPPO" BATTERY JUG**

One-piece acid resistant rubber body won't crack when dropped, holds shape when full. Soft base protects fenders. 16" flexible hose fits built-in holder. More than gallon capacity. Complete with No. 40B Thermo "Break-Not" Hydrometer.

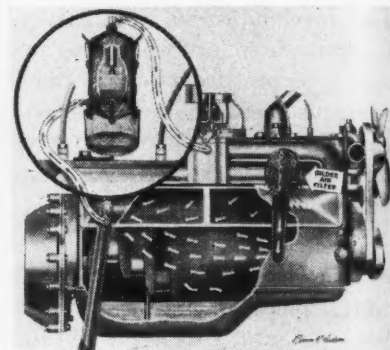


**No. T-112 "BULL'S EYE" IGNITION TIMING LIGHT**

Makes instantaneous timing tests with brilliant, magnified Neon beam. Small diameter head. Flexible, extra-long leads. Vise-grip clips have insulated sleeves. Rugged, oil and grease resistant. Complete with Bull's Eye Lens and replaceable Neon Tube.

OVER 42 YEARS OF LEADERSHIP IN MANUFACTURING AUTOMOTIVE PARTS & EQUIPMENT

**E. EDELMANN & CO.**  
2332-56 LOGAN BOULEVARD, CHICAGO 47, ILLINOIS



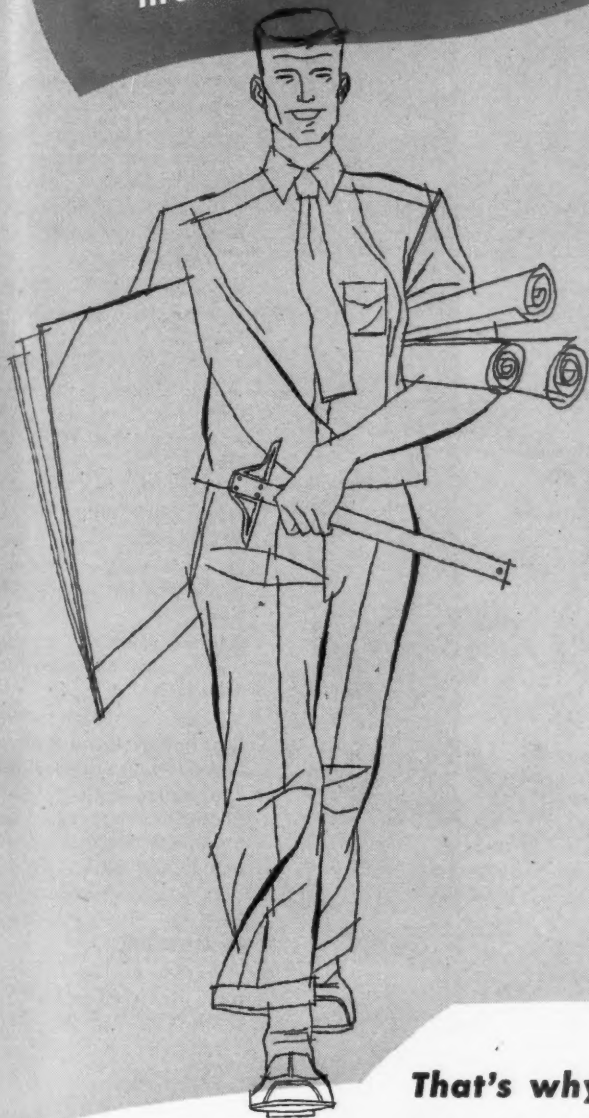
the Oildex filter and are re-used, the firm states; gasoline vapors become fuel, water vapors act like steam injection to soften carbon, and oil vapors lubricate cylinder tops. Gum, varnish and solids are trapped in the Oildex filter and retention chamber. Air moves through the crankcase in only one direction when the Oildex is used, making possible the use of the Oildex Air Filter (oil washed) on the oil fill pipe.

(Continued on page 138)





**BORG-WARNER**  
ENGINEERING  
makes it work



**BORG-WARNER**  
PRODUCTION  
makes it available



**That's why 19 of the 20  
makes of cars use one or more  
essential parts engineered and produced by  
BORG-WARNER**



THESE UNITS FORM BORG-WARNER, Executive Offices, Chicago: BORG & BECK • BORG-WARNER INTERNATIONAL  
BORG-WARNER SERVICE PARTS • CALUMET STEEL • DETROIT GEAR • DETROIT VAPOR STOVE  
FRANKLIN STEEL • INGERSOLL PRODUCTS • INGERSOLL STEEL • LONG MANUFACTURING • LONG MANUFACTURING CO., LTD. • MARBON  
MARVEL-SCHEBLER PRODUCTS • MECHANICS UNIVERSAL JOINT • MORSE CHAIN • MORSE CHAIN CO., LTD.  
NORGE • NORGE-HEAT • PESCO PRODUCTS • ROCKFORD CLUTCH • SPRING DIVISION • WARNER AUTOMOTIVE PARTS  
WARNER GEAR • WARNER GEAR CO., LTD.





As you take the wheel of one of today's fine motor cars, you may not fully realize the many steps the industry has taken to reach such engineering perfection. There in your hands is a story of continuing progress, the like of which the world has never before known.

In each new model you have found engineering progress; always there is something finer—something smoother about the operation of each new car.

Tomorrow will show the same progress. That is why the American way of automotive production is the envy of all the world. Here is an industry that has never lost the spirit of youth . . . and it never will so long as the world's finest group of engineers dream new dreams, and translate them into such dynamic action.

Borg-Warner has truly grown up with the automotive industry and the automotive industry has developed hand in hand with Borg-Warner. We share your faith in the expanding future of this great industry which we have been privileged to serve so widely . . . for so many years.

A handwritten signature in black ink, reading "Roy C. Ingersoll". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

President  
BORG-WARNER CORPORATION

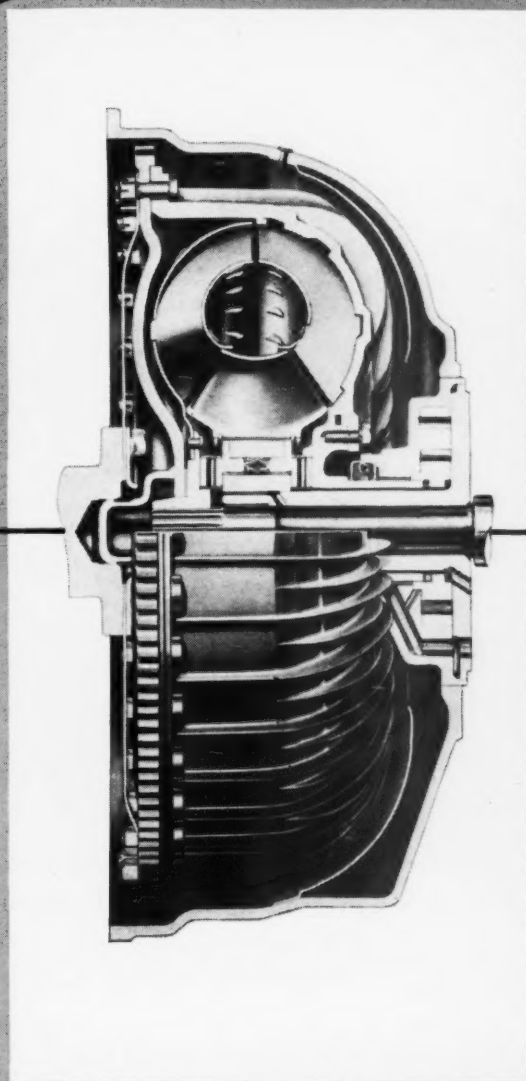
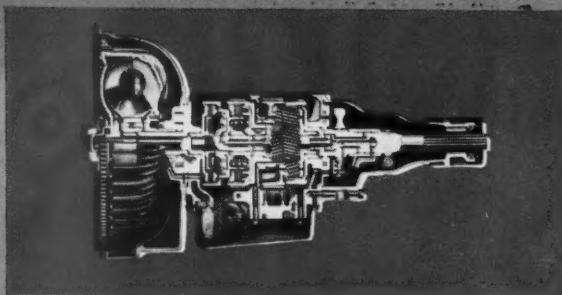
- In 1900 —the old time mixing valve was replaced by SCHEBLER CARBURETERS.
- In 1903 —The Spur type Differential was introduced by WARNER GEAR.  
Radiators made of copper tubing with attached cooling fins introduced by LONG.
- In 1913 —The Single Plate Clutch was developed by BORG & BECK and Silent Timing Chains were introduced by MORSE CHAIN.
- In 1916 —Universal Joints were developed by MECHANICS.
- In 1921 —First standard type Transmissions were introduced by WARNER GEAR.
- In 1922 —Double Plate Clutches were introduced by LONG.
- In 1923 —Multiple Spring Clutches developed by ROCKFORD.
- In 1924 —Vibration Dampening Flexible Center Clutches introduced by BORG & BECK.
- In 1930 —Transmission Synchronizer Units for Cars and Trucks produced by WARNER GEAR.
- In 1931 —Roller Bearing Universal Joints were introduced by MECHANICS.  
Free Wheeling was offered to the Industry by WARNER GEAR.  
Tapered Steel Discs for truck wheels were developed by INGERSOLL.
- In 1934 —Automatic Overdrives for Transmissions were introduced by WARNER GEAR.
- In 1938 —Borglite and Torbend Clutch Plates were introduced by BORG & BECK, LONG and ROCKFORD.
- In 1939 —Ty-ply Rubber-to-Metal Bonding material developed by MARBON.
- In 1949 —Automatic Transmissions were perfected by DETROIT GEAR and WARNER GEAR.

So it goes—year after year. Borg-Warner engineers cooperating with the engineers of all of America's producers of cars, buses and trucks help set new standards in automotive engineering. At the same time, Borg-Warner manufacturing facilities are delivering vast quantities of precision products to keep automotive assembly lines moving on schedule.



the new  
**BORG & BECK**  
TORQUE  
CONVERTER

*used in Fordomatic and Merc-O-Matic transmissions*



An air-cooled Torque Converter of unique design with steel blades assembled in die-cast aluminum Impeller whose 68 fins provide swift cooling.

The Turbine is made of steel stampings and the Stator is aluminum. Its One-Way 18 sprag clutch is Borg-Warner's well-proved design.

Light in weight, with a torque ratio of 2.1:1, it has excellent efficiency, yet it can be readily disassembled in the field for inspection or repair.

**BORG & BECK DIVISION**

BORG - WARNER CORPORATION

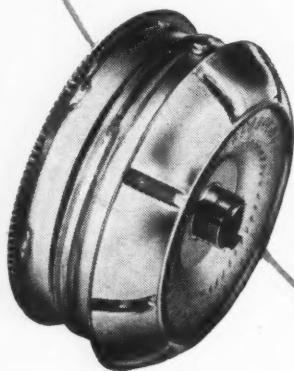
Chicago 38, Illinois







# Versatility



We've been a part of the automotive industry since its start. A half-century of production has given us our share of experience.

Our engineers have the ability and vision to "see" the answers to design problems. Our manufacturing flexibility permits quick translation of these answers into finished units.

## LONG MANUFACTURING DIVISION

BORG-WARNER CORPORATION  
DETROIT 12, and WINDSOR, ONT.



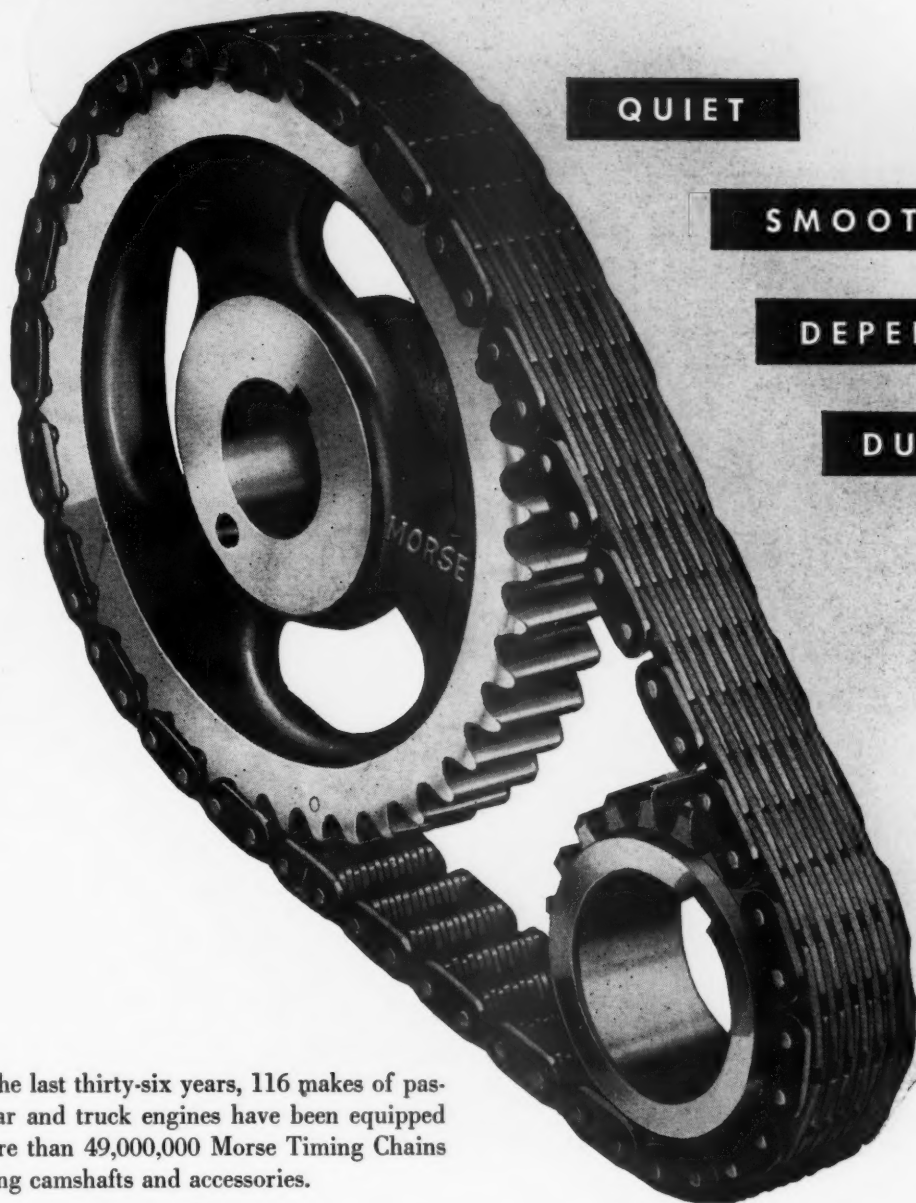
# LONG

CLUTCHES • RADIATORS • TORQUE CONVERTERS  
OIL COOLERS



# MORSE TIMING CHAINS

THE ORIGINAL EQUIPMENT LINE . . .



QUIET

SMOOTH

DEPENDABLE

DURABLE

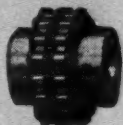
During the last thirty-six years, 116 makes of passenger car and truck engines have been equipped with more than 49,000,000 Morse Timing Chains for driving camshafts and accessories.

*Distributed Through*

**BORG-WARNER SERVICE PARTS CORP.**



Morflex  
Couplings



Roller Chain  
Couplings



Roller Chain  
Drives



Morflex Radial  
Couplings

## MORSE

MECHANICAL  
POWER TRANSMISSION  
PRODUCTS

**MORSE CHAIN COMPANY**  
DETROIT 10, MICHIGAN

*Chilton's* MOTOR AGE, JANUARY, 1952



**FOR MORE THAN 40 YEARS**  
a dependable and experienced source for manufacturer and jobber



- AXLE SHAFTS • TRANSMISSION GEARS •
- RINGS AND PINIONS •
- DIFFERENTIAL CASES AND  
INTERNAL PARTS •

## **WARNER AUTOMOTIVE PARTS**

*division of Borg-Warner Corporation*



*Auburn, Indiana • Detroit, Michigan*



# 19 of the 24 Borg-Warner Divisions produce for the Automotive Industry



# 19 of the 20 makes of Passenger Cars are equipped with one or more BORG-WARNER products



**BORG & BECK** —Clutches and Torque Converters for Passenger Cars, Trucks and Tractors.

**CALUMET STEEL** —Structural Tubing and Special Automobile Jack Bar Steel; Small Angles for Auto Seats, and Merchant Bars.

**DETROIT GEAR** —Automatic Transmissions for Passenger Cars; Truck and Bus Transmissions; Gear and Precision Parts for Passenger Cars, Trucks and Aircraft.

**FRANKLIN STEEL** —Special Automobile Jack Bar Steel; Spring Steel Bumper Bar Supports; Small Angles for Auto Seats, and Merchant Bars.

**INGERSOLL PRODUCTS** —Tapered Steel Discs for Truck Wheels; Automotive Stampings; Bumper and Stabilizer Bars.

**INGERSOLL STEEL** —Automotive and Tractor Clutch Discs; Carbon Electric Steel for Tank Clutch Plates; High Carbon and Alloy Steel Sheets; Stainless and Stainless Clad Sheets and Armor Plate.

**LONG MANUFACTURING** —Clutches and Radiators for Passenger Cars, Trucks, Buses and Tractors; Torque Converters; Oil Coolers for the Automotive Industry.

**LONG MANUFACTURING, LTD.** —(Canada). Clutches and Radiators for Passenger Cars, Trucks, Buses and Tractors; Oil Coolers for the Automotive Industry.

**MARBON** —Adhesives for Bonding Rubber and Synthetic Rubber to Metal and other Materials. (Trade Name Ty-Ply)

**MARVEL-SCHUEBLER PRODUCTS** —Carburetors for Automobiles, Trucks, Tractors, Airplanes, Motorcycles, Marine and Industrial Engines.

**MECHANICS UNIVERSAL JOINT** —Universal Joints and Propeller Shafts for Passenger Cars, Trucks, Buses, Aircraft, Farm Machinery, Tractors, Road Machinery and Mining Machinery.

**MORSE CHAIN** —Automotive Timing Chains and Sprockets.

**MORSE CHAIN, LTD.** —(England). Automotive Timing Chains and Sprockets.

**PESCO PRODUCTS** —Superchargers for Trucks, Buses and Heavy Duty Equipment; Hydraulics for Lift and Dump Trucks.

**ROCKFORD CLUTCH** —Truck, Tractor and Agricultural Implement Clutches; Industrial Clutches for Construction Machinery, Oil Field Machinery, Machine Tools, etc.; Power Take-Offs for Gasoline and Diesel Engines.

**SPRING DIVISION** —Automobile Clutch and Valve Springs; Multi-Slide and Punch Press Stampings, plain and heat treated; Special Clutch Plates and Parts for Automatic Transmissions, Torque Converter Parts and Sub-Assemblies; Sprag-Type Free Wheeling Clutches; Precision Flat and Belleville-type Springs; Small Electric Motor Commutators.

**WARNER AUTOMOTIVE PARTS** —For Replacement Purposes—Ring Gears and Pinions; Differential Cases; Differential Internal Gears and Spiders; Axle Shafts; Cast Iron Parts; Transmission Gears for Passenger Cars, Trucks and Tractors; Power Take-Offs.

**WARNER GEAR** —Automatic Transmissions for Passenger Cars; Standard Transmissions for Cars, Trucks, Taxicabs, Buses and Tractors; Over-drive Units for Passenger Cars; Transfer Transmissions for Trucks; Synchronizer Units for Passenger Cars and Trucks; Parking Brake Assemblies.

**WARNER GEAR, LTD.** —(Canada). Synchronizer Units.

Two other Borg-Warner Divisions serve in Automotive Parts Distribution: **BORG-WARNER INTERNATIONAL**—Export Sales of Automotive Parts. **BORG-WARNER SERVICE PARTS**—U. S. Distribution of Automotive Service Parts.

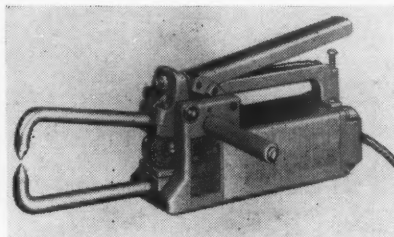
**BW**  
*Engineering makes it work*  
*Production makes it available*  
**BW**



For further information use postcard on page 73

## 52. Portable Welder

Miller Electric Mfg. Co.: The Miller Model MSW Portable Spot Welder is light enough to be car-



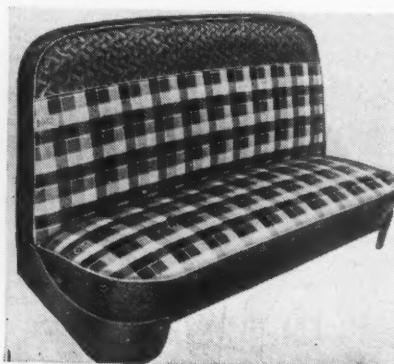
ried to the work and can be operated like any other small power tool. It is said to weld clean mild steel up to  $\frac{1}{8}$  inch combined thickness—galvanized steel capacity . . . two pieces 20 gauge.

## 53. Spray Gun

Binks Mfg. Co.: The Binks Model 29 spray gun is lightweight, with the body made of an aluminum casting. Total weight of the gun is 20 ounces. It can be used to spray lacquers, synthetic enamels, paints and all other finishes and coatings of light or medium viscosity.

## 54. Seat Covers

Rankin Mfg Co.: The Rankin Super Seat Cover is tailored in woven Lumite, with Saxon Seal-tuft Stitchless Quilted Plastic trim and extruded plastic welts. It has matching Duran facing on the front cushion and harmonizing rayon satin facing on the rear cushion. These materials are



available in a wide assortment of colors and patterns. Six other series of Rankin seat covers are

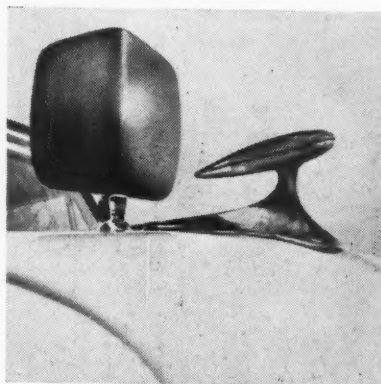
available which give the dealer a Rankin cover in almost every price range.

## 55. Timing Light

C. E. Niehoff & Co.: A newly designed timing light, the Model T-10 Time-O-Lite, generates a brilliant white short-duration flash which results in a sharp image of the timing mark. The unit takes energy from 110 volt AC line and stores it until released by the firing of #1 spark plug. This stored energy flows through a special-type light tube to produce the flash.

## 56. Bug Deflector

Jim Robbins Co.: A new hood ornament for automobiles utilizes an aerodynamic principle in keep-



ping bugs and snow off windshields. Trade named Airfoil, it is attached just behind the regular hood ornament with a stainless steel clip. Swept back in a mild "V," the two angled sides spread the oncoming air into a wide "V," current which deflects bugs and snow.

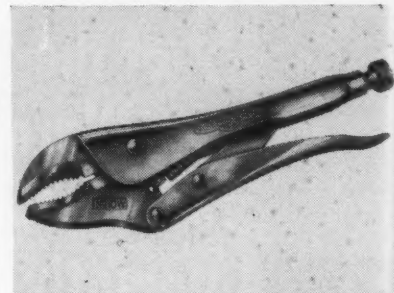
## 57. Air-Water Units

John Wood Co., Bennett Pump Division: Each Eco Islander is compact, steel column, housing two fully retractable automatic "Spira-Coil" hose reels—one with a 20 ft. water hose and the other a 25 ft. air hose. The mechanism is fully enclosed and housed entirely above ground. Models are available equipped with Eco Automatic Tire-flator, incandescent light standard,

pylon-fluorescent light, cash box-utility desk or enameled "Air-Water" merchandising sign.

## 58. Lock Wrench

Peterson Mfg. Co.: This firm is featuring the Vise-Grip wrench. It can be used effectively as an



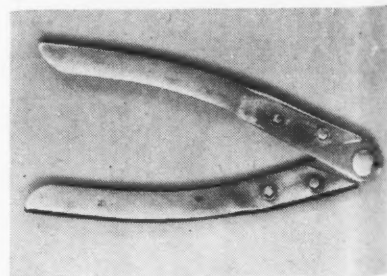
adjustable end-wrench, locking wrench, pipe wrench, super pliers, clamp, toggle press, and vise. Vise-Grip's involute jaw curve enables the jaws to grip on four points of any size nut, and gives added tooth contact for round work. Cutter jaws are claimed to cut the heaviest wire.

## 59. Fitting Stock

Imperial Brass Mfg. Co.: A brass fitting stock designed to make fittings extra easy to find, eliminate stock mix-ups and simplify reordering, is offered by this firm. Each type and size of fitting in this cabinet has a separate compartment with glass front and individual raising lid. Label under each compartment shows illustration of part, catalog number and size.

## 60. Hog Ring Cutters

Douglass Tool Co.: The Douglass No. 120 Hog Ring Cutter has hardened tool steel jaws that are short-nosed to cut hog rings. With its



powerful leverage, it can be used in the most awkward places without damage to the car upholstery, the firm states.

(Continued on page 141)



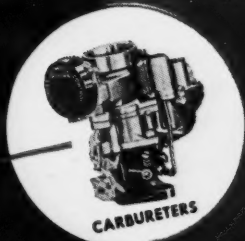
Make  
the

**CARTER**

POWER  
CENTER

**Life Line**

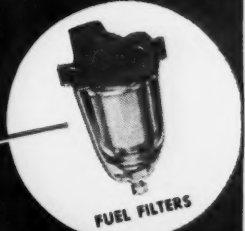
**Your BIG 3**



CARBURETERS



FUEL PUMPS



FUEL FILTERS

**for Extra Sales  
and Profits in 1952**

Carter Fuel Pumps, Fuel Filters, Carbureters, will be advertised nationally with the biggest campaign in Carter History.

The SATURDAY EVENING POST — LIFE — LOOK — COUNTRY GENTLEMAN — POPULAR SCIENCE — will carry Carter Power Center sales messages to millions of car owners, many of them your customers and prospects, selling them and sending them to you for replacements and service.

Get ready—stock up now—see your nearest Carter Distributor or Jobber. The BIG 3 is your *extra* profit line for 1952.



**CARTER CARBURETOR CORPORATION**  
St. Louis 7, Missouri  
Division of American Car and Foundry Company





# AP Mufflers



**AP**

*Mileage Getting*





# fit



## Muffler installation troubles?

...switch to AP mufflers and pipes —they're made to fit—save your time and temper.

**THE AP PARTS CORPORATION**

1588 AP Building • TOLEDO 1, OHIO

Manufacturers of: MUFFLERS • PIPES • MIRACLE POWER • dgf 123



# Mufflers

## AS Ideas . . . Continued from Page 138

For further information use postcard on page 73

### 61. Paint Additive

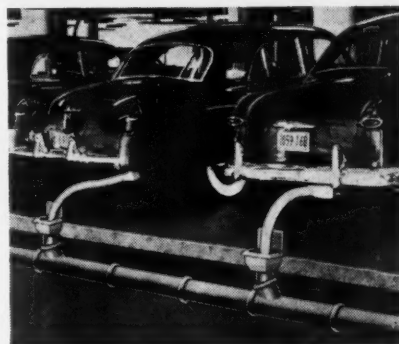
**Tone Mfg. Co.:** Fish-eye Killer is a paint additive said to keep fisheyes from forming when painting over silicone polished auto finishes. It eliminates the necessity of solvent washings, wet sandings and other commonly used methods of removing silicone polish before painting, it's maker states. An eye-dropperful of the new product, placed in a pint of standard hot or cold lacquers or standard enamels thinned to spraying viscosity, dissolves in the paint almost instantly with only slight agitation. It is reported not to change the color or affect the lacquer or enamel in any way.

### 62. Air Service Merchandising Unit

**A. Schrader's Son Div. of Scovill Mfg. Co.:** A. Schrader's Son announces their new #530-U "Certified Air Service" Merchandising Unit. Besides a minimum stock of valve caps, cores, passenger car gauges and a Schrader Trutest special gauge, it contains a 24-page manual containing "Certified Air Service" know-how, a four-page instruction folder that tells how to test and certify the accuracy of all the dealer's tire pressure gauging equipment. It also contains a complete set of three-color signs and streamers to show motorists that the dealer provides "Certified Air Service."

### 63. Exhaust Ventilation Equipment

**Car-Mon Products Company:** The Car-Mon Exhaust Unit consists of a new floor-mounted, hardring, flexible hose assembly of stainless steel; universal car or



truck adapters; 1/4-inch-thick boilerplate floor outlet assembly complete with hinged cover. A metal sweep directs the hose into a concealed underfloor ventilating duct which houses it when not in use. Each Car-Mon outlet not only removes 100 c.f.m. through the flexible tube attached to the car exhaust, but also takes 50 feet of air per minute from under the car. The hose with its attached universal tailpipe adapter slides out when the hinged floorplate cover is lifted. As soon as the hose is attached, the exhaust fan draws the gas from the car and discharges it outside the building.

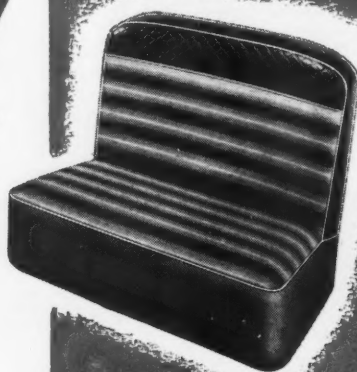
(Continued on page 143)



# ROLL ROLL ROLL



with **Howard Zink**  
in '52



Complete new line of patterns in wonderful plastic fabrics with brilliant quilted Bolta-Flex trims.



For the third straight year—full color, half page ads in The Saturday Evening Post and Holiday... the only seat covers to be nationally advertised on such a scale.



Complete new "package" of sales and advertising helps. (Last year hundreds upon hundreds of dealers from Maine to California advertised Howard Zink seat covers using mats supplied by us.)



More than ever the best-known, best-liked, most asked-for seat covers in the world... more than ever it will pay to be associated with the leader!

*How about you?  
Are you missing something?  
Send this coupon today and start rolling with Howard Zink in '52*

**SEND COUPON TO OFFICE NEAREST YOU**

**The Howard Zink Corporation**  
I'd like to learn all about your 1952 program.  
Please send your representative to see me.

Name.....  
Company.....  
Address.....  
City & Zone.....State.....

# Howard Zink

**IT PAYS**  
TO BE ASSOCIATED  
WITH THE LEADER

**THE HOWARD ZINK CORPORATION**  
Passaic, N.J. • Long Beach, Calif. • Charleston, Miss.  
Fremont, Ohio

**WORLD'S LARGEST MANUFACTURER OF AUTO SEAT COVERS**

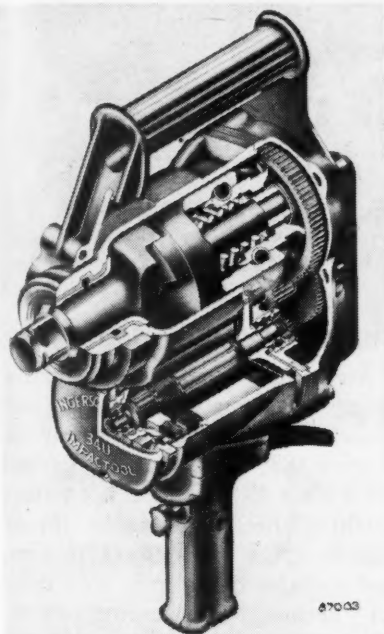
Chilton's MOTOR AGE, JANUARY, 1952



For further information use postcard on page 73

## 64. Impact Tools

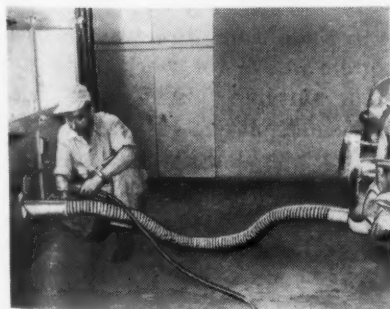
**Ingersoll-Rand Company:** A new line of automotive air Impact tools is announced by Ingersoll-Rand. The new sizes are size 304



for bolts up to 1/2 in., size 308 for work up to 5/8 in. bolt size, and size 310 for work up to 1 in. bolt size. By snapping on a standard chuck and appropriate attachments, the two smaller tools in the line can be converted from nut runners to multi-purpose units that will drill, tap, ream, drive screws, and so forth.

## 65. Exhaust System

**The National System of Garage Ventilation:** Designed for the removal of exhaust gas from bay type service areas; the National Exhaust-Dor System takes smoke and fumes direct from the exhaust pipe to the out-of-doors without heat loss in the service bays and without the use of blower and



Chilton's MOTOR AGE, JANUARY, 1952

motor system, the manufacturer reports. A National Exhaust-Dor System can be installed without any change or alteration of present facilities. Equipment necessary consists of a door plate, flexible hose, an adjustable adapter designed to permit the use of motor analyzers and a Ventura action nozzle.

## 66. Front End Parts

**Hershey Metal Products, Inc.:** New G-H Kits are now available, increasing the line of G-H Front End Parts to cover automobiles through 1951 Models. Important also in the G-H expansion program is the new G-H Catalog which simplifies the finding of the correct parts by both the shop and jobbers' salesmen through identification by actual photographs.

(Continued on page 144)

## Champ Makes More Money For YOU!



Handling the CHAMP line of oil filters and refills is just plain good business.

**CHAMP**

is best by quality test as well as profit test.

**CHAMP**

is your line on a high profit-protected basis . . . there's more money for you in the CHAMP line.

**CHAMP**

**OIL FILTERS AND REFILLS**

Ask about CHAMP'S pressure-packing for fast non-clogging filtration—write for the name of the CHAMP jobber nearest you.

**CHAMPION LABORATORIES, INC., MERIDEN, CONN.**

Manufacturers of Oil Filters and Refills for Passenger Cars, Trucks, Tractors and Diesels





For further information use postcard on page 73

## 67. Battery

**Prest-O-Lite Battery Co.:** The Prest-O-Lite Hi-Level Battery, a premium battery with special structural features which make it necessary to add water only three times a year in normal car use, headlines the company's storage battery line. The Hi-Level battery incorporates fibre-glass mats

which hold the power-producing material in the plates, designed to result in longer life and the reduction of "shedding." The lack of shedding makes it possible to reduce the size of the reservoir at the base of the battery and utilize this extra space for additional electrolyte. This keeps the active plates covered longer and makes



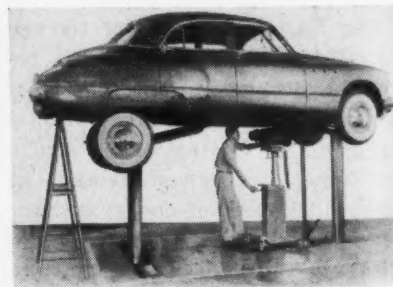
it necessary to add water less often than is required for ordinary batteries.

## 68. Fire Extinguishers

**American LaFrance - Foamite Corp.:** A new one quart, air pressurized fire extinguisher is now on the market. It discharges vaporizing liquid fluid for extinguishing both flammable liquid and electrical type fires. It aims and operates like a gun, with trigger action. The manufacturer states that it is recharged by pouring in more vaporizing liquid and can be pressurized at any standard air chuck.

## 69. Twin Post Lift


**Weaver Mfg. Co.:** The Weaver Twin Post Lift has no rails or other working obstructions ahead of, behind, or in between the front and rear wheels on any vehicle.





In addition to transmission clutch and motor work, it is said to be suitable for complete independent front end suspension, rear spring, gas tank, muffler and tail pipe and front and rear shock absorber, removal and replacement, as well as other under-chassis jobs.

(Continued on page 146)

Chilton's MOTOR AGE, JANUARY, 1952



# AMMCO SAFE-ARC GRINDS SET OF 8 SHOES IN 4 MIN!

# New Ammco Model 2000 Brake Shoe Grinder Matches Lining Perfectly to Arc of Drum!

See your Ammco jobber or write us for details

**AMMCO**

**AMMCO TOOLS, INC.**  
2192 COMMONWEALTH AVENUE  
NORTH CHICAGO, ILLINOIS





## A 1905 EXTRA!

Early automobile dealers "cleaned up" selling this wash basin as an accessory.

It featured a built in water storage and soap container and was advertised as a must for cleaning up after making road side "adjustments."

—from Floyd Clymer's Historical Motor Scrapbook

## NOW...REYNOLDS & REYNOLDS

### New "Key to Longer Car Life" REPAIR ORDERS

can help you make Extra Service Sales!

Reynolds & Reynolds introduces the new "Key to Longer Car Life" Service Selling Repair Orders. Protective service operations and the mileage intervals at which they should be performed are printed on each Repair Order Form. This timely feature increases service sales by reminding the Service Salesmen and the customers of additional services required. Service operations and mileage intervals are printed to your specifications.

In addition to helping you make extra service sales, Reynolds & Reynolds carbon interleaved Repair Orders speed your service department operations. Each set is an individual compact unit, complete with fresh carbons that insure legible, easy-to-read copies . . . no carbon paper fumbling. For samples and more information, mail the coupon today!

**THE KEY TO LONGER CAR LIFE**

- ☐ LUBRICATE
- ☐ CHANGE OIL
- ☐ CHANGE TRANS.
- ☐ CHANGE DIFF.
- ☐ REPACK F. WHEELS
- ☐ REPACK R. WHEELS
- ☐ ROTATE WHEELS
- ☐ BALANCE WHEELS
- ☐ ADJUST BRAKES
- ☐ CHECK FRONT SYSTEM
- ☐ REPLACE OIL FILTER
- ☐ AUTO TRANS.
- ☐ TIGHTEN CAR
- ☐ WASH
- ☐ POLISH & WAX
- ☐ TOTAL LABOR

**PROTECTIVE SERVICE**  
SEE TO IT NOW!

- ☐ EVERY 1,000 MILES
- ☐ EVERY 3,000 MILES
- ☐ EVERY 10,000 MILES
- ☐ THREE TIMES YEARLY

FOLLOW ABOVE SYMBOLS FOR LONGER CAR LIFE

. . . one of the several hundred sales aids and operating systems that build and protect your profits, produced by Reynolds & Reynolds



**The REYNOLDS & REYNOLDS Company**  
OFFICES IN PRINCIPAL CITIES.

The Reynolds & Reynolds Company  
Celina, Ohio

Please send me samples and information on Reynolds & Reynolds "Key to Longer Car Life" Repair Orders. (RO-520)

Name \_\_\_\_\_

Firm Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_



For further information use postcard on page 73

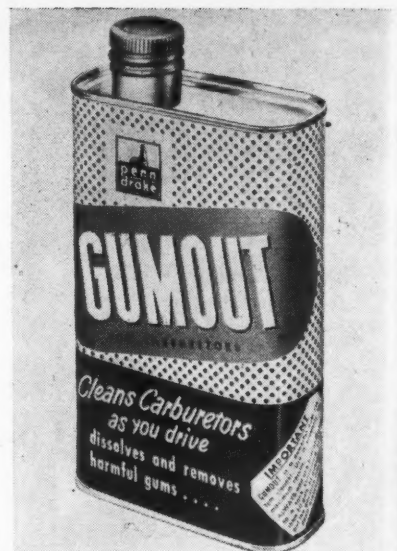
## 70. Air Brake Data

The Wagner Electric Corporation: A new series of Air Brake Maintenance Bulletins have been developed for use by repair shops, dealer, fleet owners and maintenance men. The series consists of individual maintenance bulletins, each devoted to a single unit or closely related unit of the Wag-

ner Air Brake system. The completed series will constitute one master maintenance manual covering all phases of maintenance for every unit in the system.

## 71. Carburetor Cleaner

Pennsylvania Refining Company: Gumout "on-the-engine" carburetor cleaning is a forced



flow process by which a Gumout solution enters the carburetor through the gasoline intake. A special applicator called the "Gumouter" is used for this purpose. The Gumout solution flows through all the gasoline and air jets, passages, screens and vents of the carburetor, and is designed to dissolve and remove, by chemical cleaning action, all gum, sludge, muck, moisture, varnish and lacquer deposits from all internal carburetor parts.

## 72. Ignition Parts

Echlin Mfg. Co.: One of the featured products in the Echlin Line of Ignition Parts is Echlin Heavy Duty Ignition Contacts for all ignition systems.

These Heavy Duty Contacts  
(Continued on page 147)



*presents*  
**the RIGHT SIZE  
for a refill!**

EIS SUPER "40" (moderate) BRAKE FLUID — the accepted standard for more than 12 years, is now available in a new, handy 8 ounce size!

It's just right for a refill because most cars use between five and eight ounces. Typical of EIS super quality, this brake fluid meets SAE moderate duty specification R72 and is miscible with all other standard brake fluids.

Check your stock — have this handy size on hand. Order today!

EIS AUTOMOTIVE CORP., MIDDLETOWN, CONN.



EIS SUPER "40" is also packed in pints, quarts, gallons and drums. And for heavy duty, be sure to use EIS SUPER "50". Packed in all sizes (except 8 oz. bottles.)

Ask Your Jobber or Write Us Direct





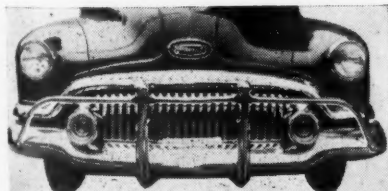
have large diameter tungsten and are equipped with stainless steel springs, copper conductor strips and thicker bushings, permitting closer machining of the hole diameter. All Echlin Condensers are hermetically sealed and water-proof. They also make capacity rated condensers, triple insulated and oil filled.

### 73. Torque Wrench

**Herbrand Division of The Bingham-Herbrand Corp.:** The new flat beam Torque Wrench is custom ground to a predetermined deflection under dead weight loading. The deflection is distributed along its entire length. There are no complicated mechanisms, or friction parts to get out of adjustment or working order, the manufacturer states. Available in 12 sizes from 25 to 300 foot pounds and 300 to 3600 inch pounds.

### 74. Grille Guards

**Erie Mfg. Division of Pressed Steel Car Co.:** Each Erie Kargard model is custom tailored to fit the majority of the 1950 and 1951 car models. Complete fender-to-fender protection in front is said to be given to grille, parking lights, headlights and front fenders, as well as the trunk, tail lights and rear fenders. The lower part of each upright curves under the bumper and bolts on to the frame. Damage is prevented because the frame's strength absorbs much of the force of an impact. The curving under adds about 4 in. of



depth to the car, preventing damage due to locked bumpers and "crawling-over" or "riding-up" in parking and minor collisions.

### 75. Shoe Grinder

**Ammco Tools Inc.:** The Model 2000 Safe-Arc Brake Shoe Grinder handles shoes for drums from 9 in. to 16 in. It has a built in vacuum type dust collector to control flying dust. The Safe-Arc is designed to match lined shoes per-

fectly to the arc of standard or oversize drums for a full bearing fit and maximum brake lining life.

### 76. Tire Booklet

**Bowes "Seal Fast" Corp.:** The "A. B. C.'s of Safe, Profitable Tire Service" are presented in a new 24-page how-to-do-it book.

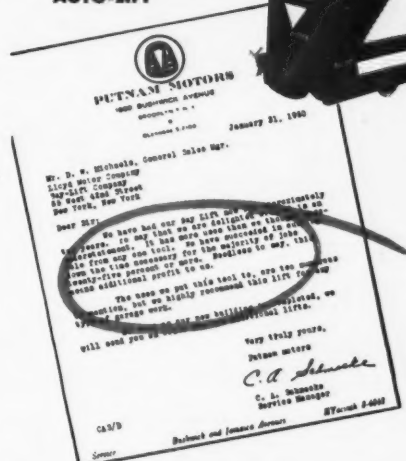
Main theme of the Bowes "A. B. C. Book" is that to be safe for the tire-owner and profitable

for the automotive service man, tire service must be complete. It must provide for: (A) Inspection; (B) Casing Repair; (C) Tube Repair. Another very important phase of complete service is—reconditioning trade-ins for profitable resale. The "A. B. C. Book" constitutes a condensed text-book on tire service practices, complete with illustrations and how-to-do-it suggestions and instruction.

(Continued on page 149)



PORTABLE  
PNEUMATIC  
AUTO-LIFT



*Excels in Economy  
and Safety*

Pat. No.  
2230250

Bay-Lift is an air operated Lift that can be moved easily as a jack for use in or out-of-doors by simply attaching to air hose.

### BAY-LIFT SAVES

Bay-Lift is low in cost. Saves Time and Labor. Guaranteed to give years of trouble-free performance, yet pays for itself in a few months.

"It has more uses than we thought possible from any one tool. We have succeeded in cutting down the time necessary for the majority of jobs twenty-five percent or more. Needless to say, this means additional profit to us."

By using a number of Bay-Lifts—which cost less than an ordinary stationary hoist—a number of jobs may be worked on simultaneously.

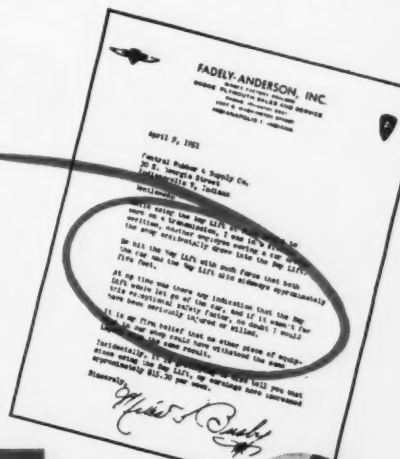
### BAY-LIFT IS SAFE

Bay-Lift offers a double safety factor. Load is supported by air-tight cylinder and made doubly safe at any height, by automatic safety ratchet lock device.

"—employee moving a car around the shop accidentally drove into the Bay-Lift.

"He hit the Bay-Lift with such force that both the car and the Bay-Lift slid sideways approximately five feet—if it wasn't for this exceptional safety factor, no doubt I would have been seriously injured or killed . . . no other piece of equipment . . . could have withstood the same impact—"

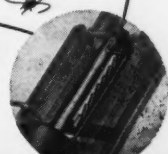
Bay-Lift requires no "tricky" attachments. Conserves space.



**BAY MANUFACTURING COMPANY**  
BOX 578—TORRANCE, CALIFORNIA

OVERSEAS DIVISION, 143 W. 45TH STREET, NEW YORK 19, N.Y.

Automatic  
Safety  
Lock



For Information Write Dept. B



# **SUNNEN<sup>®</sup>** HONING MACHINES

## Have Won **UNIVERSAL ACCEPTANCE**

for Precision Pin Fitting



**\* Accurate**

**\*\* Fast**

**\*\*\* Versatile**

**\*\*\*\* Easy to Use**

\* Sunnen Wet Honing Machines have earned their excellent reputation. Sunnen honed holes are straight and round, free from high spots and ridges. They have full bearing surface, and a pre-run-in fit that assures quieter running and longer bearing life.

\*\* Sunnen Wet Honing Machines are fast, too—you can fit 6 pins in less than 15 minutes.

\*\*\* They handle jobs on practically every kind of passenger car, truck, bus and tractor—piston pin holes, con-rod bushings, king pin bushings, hydraulic brake cylinders, steering sector bushings, small bore engines and air compressors—diameter range from .480" to 2.625". You can do these and other jobs in your own shop, *at extra profit.*

\*\*\*\* The Sunnen Honing Machine is simple to use—can be set up for any job in only a couple of minutes. A micrometer dial helps the operator control size. An easy-to-read, precision pin fitting gage is used to measure the hole diameter accurately.

Dollar for dollar, Sunnen Wet Honing is your best investment for turning out quality work and avoiding costly comebacks. Ask your Sunnen jobber to arrange a demonstration.

**SUNNEN<sup>®</sup>**  
**PRODUCTS CO.**

7918 Manchester Avenue

St. Louis 17, Missouri

Canadian Factory: Chatham, Ontario



For further information use postcard on page 73

## 77. One-end Lift

**Automatic Steel Products:** This pneumatic, portable lift can be operated on any smooth, firm surface indoors or out, which can be reached by an air hose, the manufacturer states. The air can be



applied by either an ordinary hose chuck or by a quick-coupler. It lifts either end of any 6,000 lb. vehicle to a maximum height of 50 in. at the axle and the load is automatically locked at all heights above 20 in. The Automatic One-End Lift is 82 in. long, 24 in. wide and 32 in. high when lowered.

## 78. Corrosion Eliminator

**The Donn Mfg. Company:** This firm is marketing the Korodictator, a device which is installed on the battery terminals to eliminate corrosion. It maintains an oil film on the metal with the use of a felt pad which contains three months' supply of oil. A general spring action on the retaining clip forces the right amount of oil over the surfaces. To resaturate, oil is squirted through a hole in the clip onto the pad.

## 79. Service Jack

**Tow Bar Sales Co.:** An all-purpose service jack, known as the Pak Jak, is being marketed by this firm. This two speed unit has a four-to-one gear ratio and is

said to permit adjusting to a fraction of an inch, which makes it suitable for use on transmissions, differentials, springs, axles, and so forth. The jack is mounted on a four-caster base, has a low closed position of 7 inches (with adaptor) and high open position of 23 inches.

## 80. Heaters

**E. A. Laboratories, Inc.:** New hot water heaters for General Motors, Chrysler and Ford cars will be merchandised under the names of Travelaire and Superpower for Chrysler, Twin Air for General Motors and Superpower for Ford. They provide fresh air for cooling and demisting—plus fan-forced heat for winter comfort.

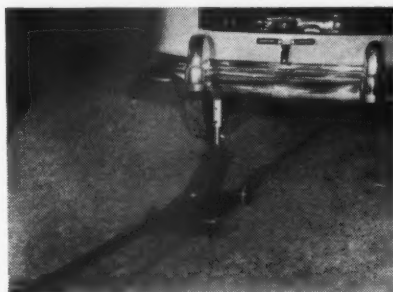
## 81. Brake Booklet

**Grizzly Manufacturing Company:** A comprehensive discussion of the causes of premature brake block failures is reduced to simple, concise terms and extensively illustrated in a new booklet called "How to Prevent Premature Brake Block Failure." While the booklet is written specifically for those who operate and service vehicles using heavy duty blocks, the fundamentals contained therein are applicable to all automotive braking systems.

## 82. Service Jack

**American Hydraulics, Inc.:** The JBL 1½ American Bumper Lifter Service Jack will raise any of the new low-slung cars by the bumper alone high enough for wheel and tire changes, the manufacturer states. Because the bumper-lift

(Continued on page 150)



# HERE'S PROOF

from

## SUNNEN<sup>®</sup>

### Users...

➔ *"We use two Sunnen Honing Machines... No other machines could take their place for speed and versatility."*

J. D. Motor Rebuilders  
Cedar Rapids, Iowa

➔ *"Increased output at least 50%..."*

Automotive Supply Co.  
Independence, Missouri

➔ *"We find that Sunnen Wet Honing saves us about half of our working time—and gives us better quality work, too."*

Joy Brothers  
Motor Car Company  
St. Paul, Minnesota

➔ *"Increased our service volume—gives our customers a better job."*

Weber-on-Lindell  
St. Louis, Missouri

A trial will prove these things to you, too. Ask your Sunnen jobber for a demonstration.

## SUNNEN<sup>®</sup>

### PRODUCTS COMPANY

7918 Manchester Avenue  
St. Louis 17, Missouri

Canadian Factory: Chatham, Ontario



For further information use postcard on page 73

arm may be replaced by a saddle (which is furnished with the jack) this model is used with equal facility as a standard under-axle jack.

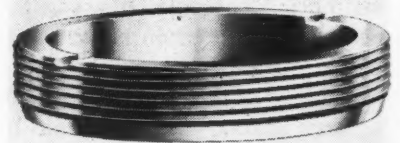
### 83. Hole Saw

Miller Falls Company: Blu-Mol heavy duty high-speed hole saws are the follow-through type. They

are designed to cut from 9/16 to 4½ inches in diameter and up to 1⅞ inches thick in any machinable material such as hard and mild steels, aluminum, brass and bronze. Since the outside diameter of the cut is slightly larger than the diameter of the body, the saw follows completely through its own hole.

### 84. Valve Seat

Peterson Welding Laboratories, Inc.: For eliminating valve breaking and burning between over-



hauls, this firm recommends replacing worn valve seats with the Peterson-Burston Screw-In type. This new screw-in valve seat has expansion clearance built in, to keep it continually round, flat and level. The larger surface area of the threads carries heat away faster and locks the bottom of the seat tight against the block. Special Peterson-Burston 8-fluted cutters and taps counterbore thread the block for the seat. The seat is then screwed in and milled down to original engine height.

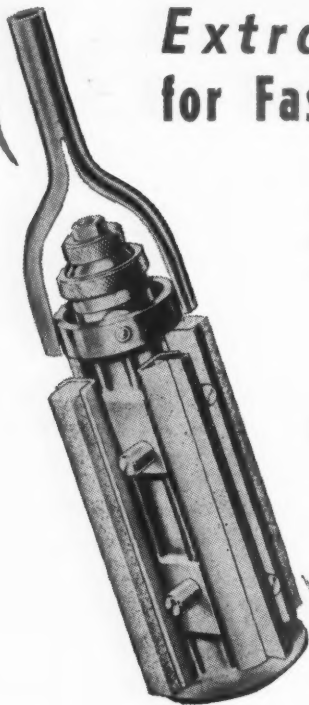
### 85. Financing Plan

Commercial Credit Corporation: Here's a convenient financing plan that enables shops to install new equipment for a small amount of cash down. The balance is paid off in monthly payments. This Automotive Equipment Plan enables shops to modernize immediately and take advantage of the increasing auto repair business without a large cash outlay.

### 86. Welding Outfit

Air Reduction Sales Co.: Air Reduction's "Flamecraft" All Pur-  
(Continued on page 151)

## *Lisle* **CYLINDER HONE** *Extra-long Stones* **for Faster, Easier Honing**



Longer 5-inch stones hone faster, more accurately, wear longer. Instantly expands to cylinder size; convenient micrometer feed.



### FOR ALL CYLINDERS

Standard range 2 11/16" to 4½". Extra stones available to handle 2.6" to 10 inches.

**LISLE CORPORATION**  
BOX 1024, CLARINDA, IOWA

*it's a good tool...it's a* ***Lisle***

**JEEPERS CREEPER** now sold exclusively by LISLE



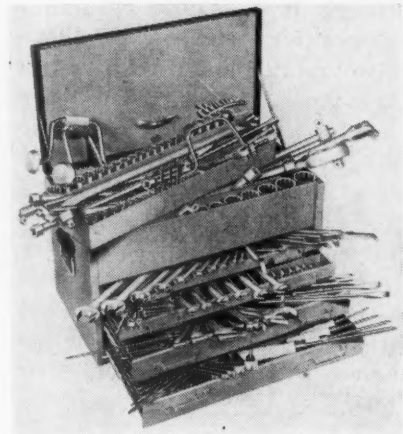


For further information use postcard on page 73

pose Outfit was designed to give garages all the equipment they need for welding, heating, bending, brazing and cutting. It includes a pair of cylinders that provide a gas ratio of 60 cu. ft. of acetylene and 122 cu. ft. of oxygen. The cylinders are supplied on a lease basis for a 25 year period.

## 87. Tool Set

J. H. Williams and Co.: The "Superchest" No. 2001 contains a combination of "Supersockets" and attachments, "Superwrenches," pliers, chisels, screwdrivers, and so forth, totaling 146 pieces



in all. The "Superchest" is constructed of heavy gauge steel heavily reinforced and welded. Removable "tote" tray gives access to the interior and has compartments which keep sockets at proper height within easy reach.

## 88. Brake Lining

The Raybestos Division of Raybestos-Manhattan, Inc.: Brake lining sets from Raybestos are furnished in factory-packaged combinations of different types of lining, made by 7 various manufacturing processes. Raybestos engineers have found that in order to give trouble-free brake service, one kind of brake material is not enough. For example, in some types of brakes, the primary shoe does most of the work, in others its the secondary shoe that carries the burden. Therefore, in order to

give the motorist the maximum of service, it is important that different types of linings, with the proper combinations, be specified.

## 89. Coil Spring Sets

Moog Industries, Inc.: The Moog No. 639 is a Heavy Duty Coil Spring, in matched sets, for 1939-51 Chevrolet Cars. This spring is

engineered for Chevrolet owners, who have need for extra spring protection under unusual driving conditions.

## 90. Stop Light

The Anthes Force Oiler Co.: This light has an effective lens area of 6¼ in. and an over-all diameter of 7¼ in. The 2 in. letters, STOP, stand out in black panel background. The No. 570 is finished in black enamel with a  
(Continued on page 152)



# NOW...

## One Complete Repair Kit For Drive Line Overhauls

### National All-In-One Kit

The "All-In-One" Kit consists of the National Drive Shaft Bushing & Seal Assembly, Steel Ball Housing with Drive Shaft Housing Repair Unit, and Universal Transmission Case Ball Seat.



These kits make a complete repair and save discarding a transmission case—drive shaft and drive shaft housing. You can make quicker, more profitable repairs with National "All-In-One" Kits, and yet build customer good-will, because they save major repairs.

**For Most Chevrolet Cars & Pick-Ups, Most GMC Pick-Ups.**

### THE NEW M-105 Drive Shaft Bushing and Seal Assembly with Knurled Head

- FINEST MATERIALS
- PRECISION MADE
- THOROUGHLY INSPECTED

### Chevrolet 1951 Passenger Cars & Pick-Ups



*Cut Away of M-105 Showing Bronze Bushings (Patented)*

**Saves Buying a New Drive Shaft.**  
Provides new bearing surfaces and heavier seal. Uses Old Shaft. Fits Over U-Joint. Install Without Tearing Down Differential.  
There are National Drive Shaft Bushing & Seal Assemblies for Most Chev. Cars & Pick-Ups, Most GMC Pick-Ups.

**CONSERVE VITAL MATERIALS**

As Advertised in the Saturday Evening Post  
Sold Nationally by Leading Automotive Wholesalers.  
Write or wire for full information



## NATIONAL MACHINE WORKS, INC.

P. O. BOX 4305 • AUTOMOTIVE PARTS MANUFACTURERS • OKLAHOMA CITY 9, OKLA.



For further information use postcard on page 73

stainless steel door. The light is furnished with a rugged L-shaped bracket which permits any-position-mounting.

## 91. Parts Cleaner

Storm-Vulcan, Inc.: Turbo Blast machines are designed for cleaning motor blocks and all metal parts. The solution is charged

with detergent and heated to the required temperature by a new oil burner heater unit. Turbulence is created by the machine impeller, which forces the solution into every area of motor blocks and parts. Gas burner models are also available. All models can be equipped with pilot-stats and thermostats.

## How Much PROFIT Do YOU Make Charging Batteries?

Battery charging profit depends on many things . . .

- Cost of the original equipment
- Labor involved using the equipment
- Cost of operation
- Repairs and maintenance

Compare the Silver Beauty 120 with any other quality charger on these points . . . and judge for yourself!  
You can make *more profit* with the Silver Beauty!

- They cost less to purchase
- They are more easily handled, save "hook-up" time
- They operate at a fraction of the cost of old-style chargers
- They are built for continuous maintenance-free operation

What's more, you can buy several 120's for the price of one old-style charger . . . service more customers at one time!

Lower cost is only part of the Silver Beauty story!

Compare the quality features with other chargers . . .  
Silver Beauty automatic reset circuit breaker and charge taper completely protect battery and charger. The 120 can fast charge, slow charge, trickle charge, and quick boost.  
Like all Triple-A selenium chargers, the 120 is **GUARANTEED A LIFETIME!**

Ask your automotive jobber about the 120, and the rest of the complete Silver Beauty line for every charging need.

## Triple-A

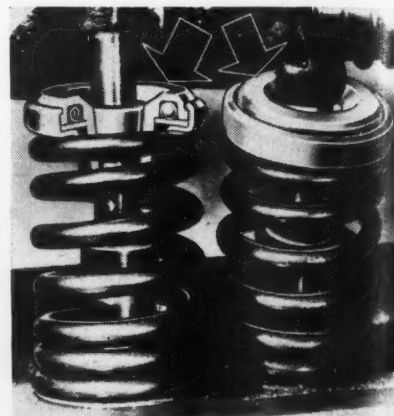
SPECIALTY COMPANY

2101 West Walnut Street  
Chicago 12, Illinois

Manufacturers of Electrical Products  
and Power Supply Equipment for over Thirty Years

## 92. Valve Rotators

Thompson Products, Inc.: Thompson Products will give special attention to selling the advantages of valve rotation, particularly in the heavy-duty maintenance field.



The company offers through its distributors both a non-positive release-type "Roto-valve" rotator and a positive-type "Rotocap" rotator. The new Thompson replacement parts catalog carries many listings of both types. According to Thompson Products thirty engine builders are now using valve rotators. Over half of them have adopted the positive-type "Rotocap" which turns the valve approximately 6 degrees with each complete valve cycle.

## 93. Piston Rings

Burd Piston Ring Company: The new Super Hi-Speed Chrome Piston Ring set is for heavy duty service in trucks and passenger  
(Continued on page 154)



"Why look so surprised? It's what you're always calling me!"

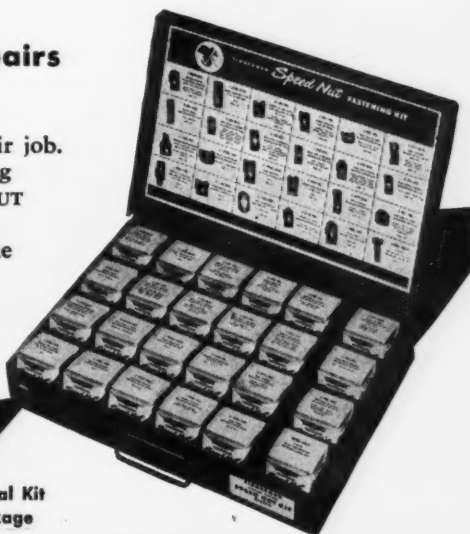




## FENDER FASTENERS

### SPEED NUT Kits Contain the Right Parts for Repairs on All Leading Makes

Have the *right* fender fasteners on hand when you tackle any repair job. It'll pay you in time saved—in profits made. You can count on having exactly the right replacement part if you use Tinnerman SPEED NUT kits. You'll be equipped for all types of crash repairs—on fenders, grilles, headlamps, etc.—because SPEED NUT Kits contain the most frequently replaced fasteners for all makes. There are two handy kit sizes for all 9 leading makes of cars, as well as unit packages containing small quantities of all replacement SPEED NUTS. Ask your jobber for details on Wall Chart Identifier and Complete Parts Catalog, or write TINNEMAN PRODUCTS, INC., Department 12, Box 6688, Cleveland 1, Ohio.



Complete Line of Automotive Replacement Kits for All Cars

Series 2000 Metal Kit and Unit Package

fastest thing  
in fastenings



TINNERMAN

*Speed Nuts®*





For further information use postcard on page 73

cars. The new set utilizes chrome compression rings for the top groove, plus chrome faced segments in the new ND-800 oil ring.

## 94. Rubber Dressing

American Grease Stick Co.: A new use for RuGlyde rubber lubricant and preservative is being promoted by the manufacturer.

The product is being recommended for dressing up tires, floor mats, foot pedals, weather stripping, and other rubber accessories, regardless of color. Application of RuGlyde for this purpose is said to be easy and effective. Simply "rub on and wipe off." It can be effectively used on all kinds of rubber, natural or synthetic. For

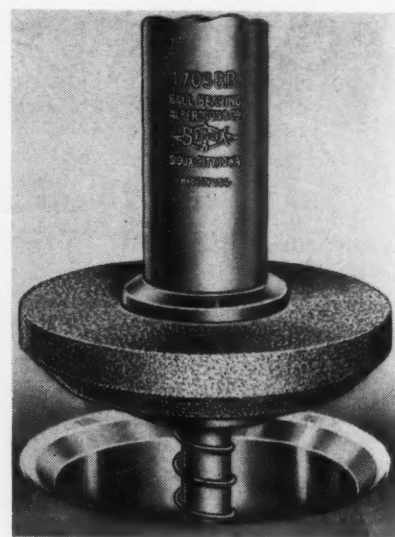
white sidewall, a liberal portion should be applied to tire and scrubbed with stiff bristle or wire brush; then wiped off with a damp rag or flushed with water.

## 95. Spark Plugs

AC Spark Plug Div. of General Motors: The greater strength and heat conductivity of Coralox, the latest major development in AC Spark Plugs, permits the use of longer, thinner insulator tips even on cold plugs without danger of breakage, according to AC Spark Plug engineers. Such tips heat up faster, to burn away oil and wet carbon deposited while the engine is warming up, yet do not get hot enough to cause pre-ignition. This, the engineers declare, enables the Coralox insulator to stay clean longer and fire more reliably at any engine temperature.

## 96. Valve Seat Grinder

Albertson Company, Inc.: The Sioux No. 1780 Valve Seat Grinder<sup>®</sup> is furnished in a "basic set." It includes a driver, dressing tool,



holders, spanner wrench, indicator, plus other necessary parts in a metal container. The driver has permanently lubricated alloy steel gears and an aluminum alloy case.

## 97. Inspection Units

Magnaflux Corp.: Two units have been developed by Magnaflux Corporation for the automob-  
(Continued on page 156)

# CAMPBELL

## Lug-Reinforced TIRE CHAINS

...the line to push for  
**WINTER PROFITS**

### SUPERIOR PRODUCT

Only Campbell Chains have the patented lug-reinforced construction that means greater traction on ice and snow.

### OUTSTANDING PACKAGING

Campbell Chains are attractively packed in boxes and bags for easy identification and convenient storage in car or truck. Every box of Campbell passenger car chains includes the easy-to-use Chain Applier.

### FORCEFUL MERCHANDISING

Campbell displays, like the new point-of-sale banner, are real sales-makers.

### NATIONAL ADVERTISING

Campbell's national consumer advertising in *Pathfinder* and *Business Week* creates a demand for Campbell Chains and reminds all car owners to carry a set of tire chains in their car at all times.

See your Campbell Chain jobber, or  
write direct, for complete details.

**CAMPBELL CHAIN**  
*Company*

Main Offices—York, Pa.  
Factories—York, Pa. and West Burlington, Iowa



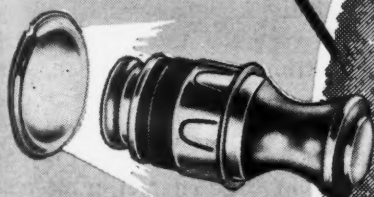




...makes a  
winter wonderland  
of Sales!

CONSISTENT  
NATIONAL ADVERTISING  
in great mass magazines  
like the Saturday Evening  
Post, makes CASCO a  
familiar name to your  
customers.

**POST**



**CASCO VIS-O-LITE**  
**THE FIRST AND ONLY LIGHTER**  
**WITH AN ILLUMINATED WELL!**

Terrific demand for this  
most modern of automatic  
pop-out lighters. Light  
from dashboard well  
guides hand back swiftly  
and safely.

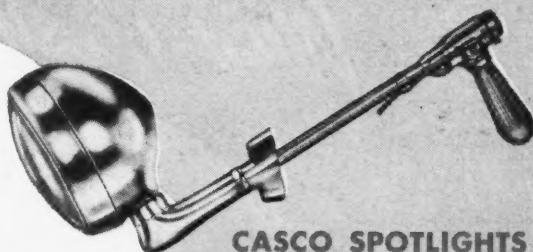
No. L-31 LIST \$2.85



**CASCO FAN HUB REPLACEMENT ASSEMBLY**  
**TREMENDOUS NEW MARKET EVERY DAY**

Worn out fans of every make are replaced daily with the  
reliable CASCO Fan Hub Assembly. Merchandising pack-  
age includes 6 Fan Hub Assemblies — each 3 mounted on  
display card.

No. F-14 LIST \$3.00



**CASCO SPOTLIGHTS**

**FINEST MADE! INNER CONTROLLED!**

Powerful sealed-beam light turns in a  
complete circle. Smart, streamlined  
design... heavily chrome-plated.

JUNIOR: No. S40 Thru-the-Post LIST  
No. S35 Thru-the-Door \$18.00  
STANDARD: No. S41 Thru-the-Post LIST  
No. S36 Thru-the-Door \$18.50  
(Standard Models also available for 12 volts)

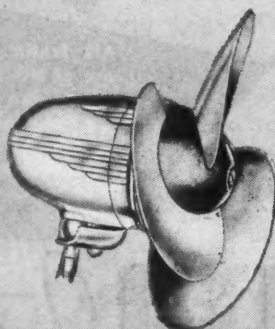


**CASCO GLASS WINDSHIELD DEFROSTER**

**SAFE! SURE! PROFITABLE!**

Exclusive Switch Control plug provides  
positive "on and off" heat control. De-  
froster, 8"x16", works wonders in sleet,  
ice, snow and fog.

No. A-15 for 6 Volt Systems...LIST \$4.10  
No. A-16 for 12 Volt Systems...LIST \$4.60



**CASCO 2-SPEED 6"**  
**RUBBER-BLADED AUTO FAN**  
**QUIET! DEPENDABLE!**

Fans have chrome-plated metal trim and  
swivel arm. Motor case is die-cast, has  
universal mounting brackets for quick,  
easy installation.

No. F-11 (6 Volt)...LIST \$8.75  
No. F-12 (12 Volt)...LIST \$9.75

DEPENDABLE PRODUCTS FOR OVER A QUARTER CENTURY

**CASCO**

CASCO PRODUCTS CORP., BRIDGEPORT 2, CONNECTICUT



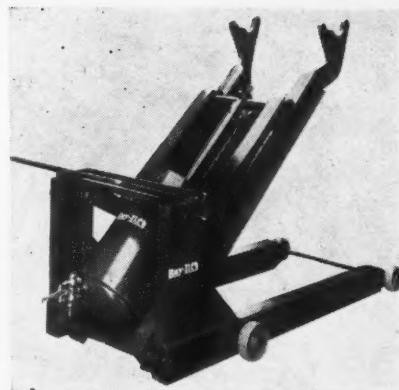
For further information use postcard on page 73

tive jobber shop and the custom engine rebuilding shop to furnish metal inspection facilities to the truck and bus fleet operators. The larger of these two, equipped with the Magnaglo Hood and black lights, is used for inspection of any automotive part from small springs up to axles and crankshafts, with a maximum length

capacity of 96 in. The smaller unit is directly similar but shorter, taking parts up to 54 in. in diameter.

## 98. One-end Lift

Bay Manufacturing Co.: Bay-Lift is a portable, pneumatic lift. These lifts, offered in passenger car and heavy duty truck models, can be moved and used in or out-



of-doors by attaching to an air hose. The load is supported by an air tight cylinder and is said to be made doubly safe at any height up to 50 in. by its automatic safety locking device.

## 99. Color Matcher

Briggs Mfg. Co.: The Briggs Mechani-Mix makes available over 3,000 colors with a small inventory of popular tinting base colors. Makes just the quantity needed, eliminating half-filled cans of partly used paint laying around the paint shop. For matching of over 3000 colors you need only 24 gallons of base enamel or 24 gallons of base lacquer colors.

## 100. Shock Absorbers

Houdaille-Hershey Corp.: The Houdaille Shock Absorber Service Station Assortment contains 12 Houdaille "Hercules" Direct-Action Shock Absorbers providing  
(Continued on page 158)

**What-no slip?**

**NOW! LOOK AT THIS CONSTRUCTION**

ALL Echlin Contact arms are of NO SLIP construction... the metal frames are firmly embedded into recessed bushings. Just another ECHLIN EXTRA at no extra cost to you!

**ECHLIN Ignition**

A PRODUCT OF ECHLIN

CONTACTS  
COILS CONDENSERS  
& OTHER AUTOMOTIVE  
ELECTRICAL PARTS

ECHLIN MANUFACTURING COMPANY, Dept. MA, 220 EAST ST., NEW HAVEN 5, CONN.





THIS KIND OF BASIC LEADERSHIP MAKES  
PONTIAC THE BEST DEAL IN THE INDUSTRY!



*Presenting the*

# '52 Pontiac

with Spectacular ***Dual-Range*** Performance!



Equipment, accessories and trim illustrated are subject to change without notice.

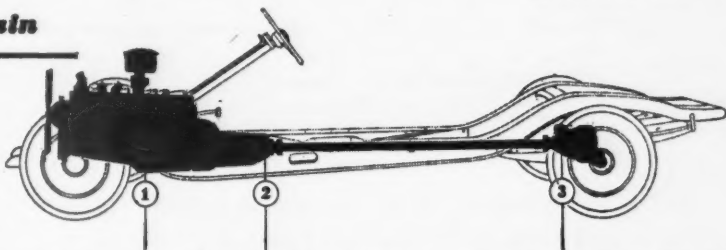
**B**E sure to see the great 1952 Pontiac! It brings you General Motors' sensational new Dual-Range Hydra-Matic Drive\* — coupled with Pontiac's great high-compression engine—and a new high-performance, economy axle. At the *touch of your finger*, you can elect to have tremendous acceleration and snap and go! Or,

with equal ease, you can choose an altogether *different* type of performance; silken, gliding, gas-saving—perfection itself for the open road. In other words, you have the power you want—*where* and *when* you want it. And there are many *other* advancements in the new Pontiac, too. Better *see it—drive it—today*. It's a sensation!

\*Optional at extra cost.

## ***Featuring a Wonderful New Power Train***

- ① **More Powerful High-Compression Engine**
- ② **Wonderful Dual-Range Hydra-Matic Drive\***
- ③ **New High-Performance Economy Axle**



**THE POWER YOU WANT WHEN YOU WANT IT WHERE YOU WANT IT**

DOLLAR FOR DOLLAR YOU CAN'T BEAT A PONTIAC • PONTIAC MOTOR DIVISION OF GENERAL MOTORS CORPORATION

*Chilton's* MOTOR AGE, JANUARY, 1952



For further information use postcard on page 73

for the service needs of late-model Fords and Chevrolets originally equipped with Direct-Action Shocks, as well as for all Plymouths, Chryslers, Dodges and De Sotos produced since 1937.

## 101. Electrical Tape

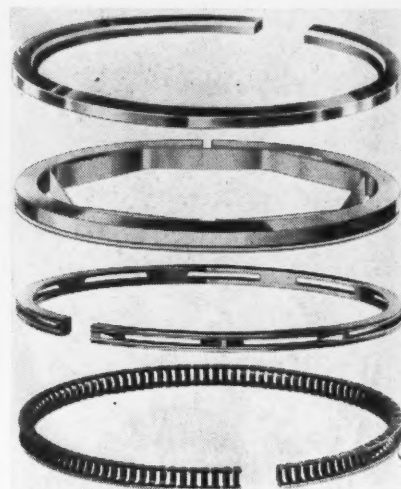
Minnesota Mining and Mfg. Co.: Two electrical tapes for shop use,

plus one for resale, will be one of Minnesota Mining and Manufacturing Company's featured automotive trade products during 1952. Featured for shop use are the 20-foot job-sized rolls and the 66-foot economy-sized rolls of "Scotch" brand electrical tape No. 33. It is made in a 3/4-inch width. The tape is a black vinyl plastic that pro-

vides the electrical insulation and the abrasion resistance that formerly required two or more conventional tapes, the manufacturer claims. The tape is used for motor work and other wiring jobs, and is also employed for such work as temporary repair of heater and radiator hose, and for repairing the rubber around car doors and windows.

## 102. Piston Rings

Toledo Steel Products Co.: New in '52 will be Toledo's U-Flex rings, now packaged in complete sets for International trucks, Buick and Nash passenger cars.



This one piece, heat treated steel oil ring is designed to provide metered upper bore lubrication and full capacity oil drainage for balanced oil control.

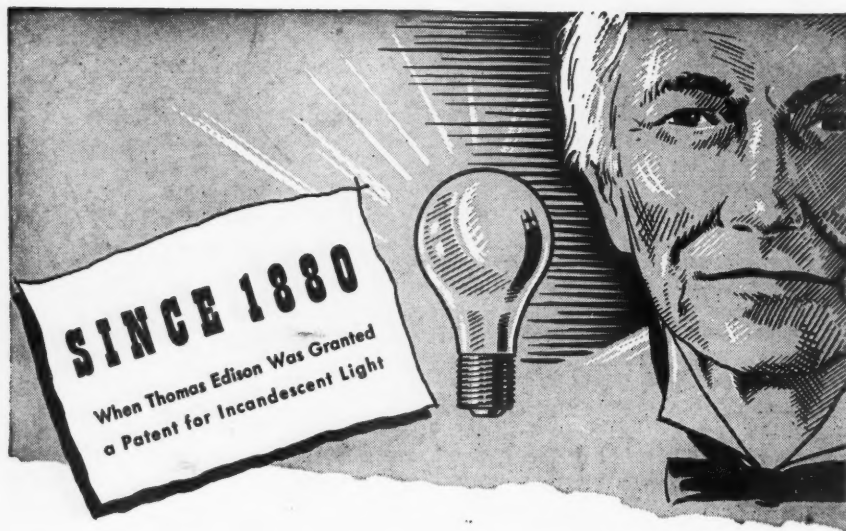
## 103. Pre-paint Chemical

Auto Painters Aid Company: A.P.A. is a new powder form wax and grease remover with a combination solvent, abrasive reaction. The abrasive action of A.P.A. is equal to approximately #400 sandpaper. A.P.A. reduces the use of sandpaper and primer.

## 104. Voltage Regulator

American Bosch Corporation: A universal line of regulators, announced by this firm, has such a wide range of applications that it is only necessary to carry three types in stock to fit almost any car on the road.

(Continued on page 162)



# TUTHILL has specialized in the manufacture of top quality SPRINGS

There's more than steel and 70 years of EXPERIENCE in Tuthill Springs. There's more than QUALITY . . . the finest alloy steel obtainable, heat treated for greater strength and longer life. There's also PROFIT in fast turnover for a product that is constantly in demand because it's dependable and priced right. And now there's even more . . . MOLYBDENUM DISULPHIDE (MoS<sub>2</sub>), the newest Tuthill extra that keeps springs from squeaking and galling. What's more, Tuthill Springs are "Moly Disul" treated at no extra cost!



**TUTHILL SPRING CO.**  
760 W. POLK ST. CHICAGO 7





# "ACME PRO-FLEX NEVER FAILS TO GIVE US PERFECT ENAMEL SPOT WORK"

Says ROY MATHEWS, Chief Painter,  
B. J. Ratigan Motor Sales, Detroit.

"It's the kind our customers expect from us. It dries fast; it sands easily; it has a high gloss that lasts . . . I've worked in paint shops for 25 years, and tried about every paint on the market. The Acme line beats them all!"



BOB MASSEY, Bump Shop Manager, says:

"Spot jobs are profitable when you can do a good job fast! Baked enamel spotting is no longer a problem. We use Acme Pro-Flex. For all-over jobs Acme's Fleet-X Synthetic Enamel is our choice. Both are tops in Acme's line of Factory-Made Colors."



Founded by Ben Ratigan in 1924, B. J. Ratigan Motor Sales is Detroit's oldest De Soto-Plymouth dealer.

**CALL YOUR ACME JOBBER**—He has everything for every paint shop, including  
**THE FAMOUS ACME COLOR EYE AND BASIC TINTING COLORS.**

*The*  
**ACME WAY**

*Makes*  
**PAINTING PAY**

# ACME

**AUTOMOTIVE FINISHES**

ACME QUALITY PAINTS, INC. • Former Name: Acme White Lead and Color Works • Detroit 11

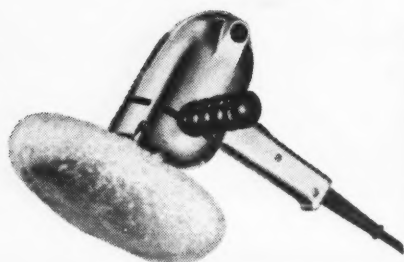


# "We do polish jobs with a **SKIL**

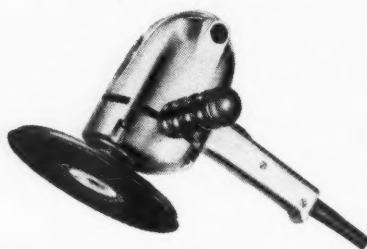
says **EARL SLATTERY**, proprietor,  
**SLATTERY SHELL SERVICE**, Milwaukee, Wisconsin

"We do an excellent polishing job in a hurry with this Model 570 SKIL Polisher," says Mr. Slattery. "Not only does the powerful SKIL Polisher save labor and time," this service station proprietor explains, "but it produces a top

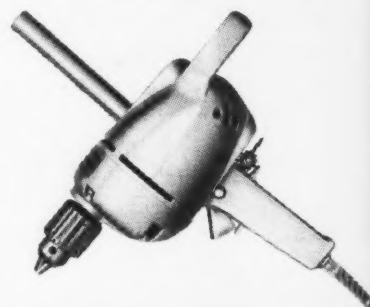
quality polishing job that satisfies car owners and makes *steady* customers." Mr. Slattery adds, "With our SKIL Polisher and SKIL Auto Polish we can put a beautiful like-new finish job on almost any car!"



**Polisher.** Four times faster than hand polishing. Easily operated. Easily handled. Light weight. Full-size 7" pad. Model 570.

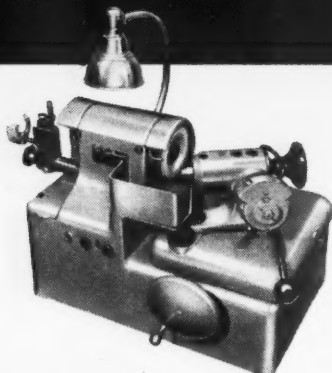


**Disc Sander.** New low-priced tool amply powered for regular use. Perfect balance. Full-size 7" disc. Model 551. Other models for specific duties.

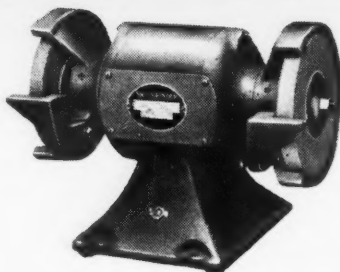


**Drills.** Model 80—Standard duty. 1/2" capacity. Compact design for use in restricted space. One of 26 models, with speeds from 250 to 5,000 r.p.m. Complete range of capacities.

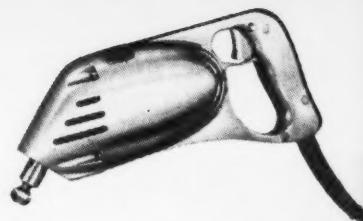
ASK YOUR **SKIL** JOBBER TODAY  
ABOUT THE WORLD'S FINEST AUTOMOTIVE TOOLS



**Valve Refacer.** Grinds valves, valve stems, and rocker arms. For wet or dry operation. Two motors. Standard equipment includes all the "extras"; micrometer butt grinding attachment, depth gauge, built-in coolant system, etc.



**Bench Grinders.** Seven sturdy models meet exact requirements. All models have ball bearing construction, removable wheel guards, and heavy base for stability. Sizes range from 6-inch, 1/4 h.p. to 10-inch, 1 h.p.



**Valve Seat Grinders.** Model 318—Standard duty. Light weight. Cool running. 45° angle drive permits easy work in confined spaces. One hand balance. Trigger switch with locking pin for continuous grinding. Heavy duty seat grinders also available.



**four times faster  
Polisher!"**



**SKIL**  
PORTABLE TOOLS

SKIL Products are made only by SKILSAW, Inc.  
5033 Elston Avenue, Chicago 30, Illinois

SKILSAW factory branches in 34 principal cities.  
In Canada: Skiltools, Ltd., 3401 Dundas Street West  
Etobicoke 9, Ontario



For further information use postcard on page 73

## 105. Bonding Program

The National Brake Block Corporation: Two New Features are announced for National's Brake Lining for Bonding program. The first feature is that brake lining for bonding may be ordered by using the same FMSI (BLMA) numbers which are used for ri-

veted linings. This method is reported to simplify ordering and eliminate the need of special code numbers for Brake lining for bonding. The second feature is that National is charging no extra cost to users who desire National pre-coated with bonding cement. The cost for bonding or riveting is the same.

**"NO OTHER TOOL SO HANDY  
FOR ALL  
AUTOMOTIVE SOLDERING"**

says **HARRY F. KAHLER**, Proprietor, Harry F. Kahler & Son, Auto Service, Philadelphia 11, Pa.

"My time and my mechanics' time costs money. Old fashioned, slow-heating soldering tools waste time and current. But my new 250 watt Weller Soldering Gun saves both—paid for itself in a few months. *Five-second heating* and chisel-shaped *RIGID-TIP* give faster soldering. Trigger-switch control means no wasted current—never have to unplug the gun between jobs. *Dual heat* lets me use my Weller Gun for light and heavy work—body touch-up, electrical and radiator repairs, ignition, instruments, generator, gas tank and gas line work. Every auto mechanic should have a Weller Gun in his tool box."

## New WELLER 250-Watt Auto Mechanics Soldering Gun

**DUAL HEAT**—single heat 200 watts; dual heat 200/250 watts; 120 volts, 60 cycles.

**WELLERTIP**—Rigid, provides more soldering area.

**SOLDERLITE**—Prefocused spotlight.

**5-SECOND HEATING**—No waiting—no wasted current.

**LONGER REACH**—Slides into tightest corners.

**TRIGGER-SWITCH CONTROL**—Instantly on, instantly off.

Order from your distributor today, or write for bulletin direct.

**WELLER**  
ELECTRIC CORP.

801 Packer Street, Easton, Pa.



**SOLDERING GUIDE**—Get your copy of "SOLDERING TIPS"—new fully illustrated 20-page booklet of practical soldering suggestions. Price 10c at your distributor or order direct.



## 106. Cigar Lighter

Casco Products Corp.: The Vis-O-Lite dashboard lighter features an illuminated well when the pop-out unit is removed for use. A stream of light in the darkened car's interior provides a visual indicator for quick replacement of the cigarette lighter.

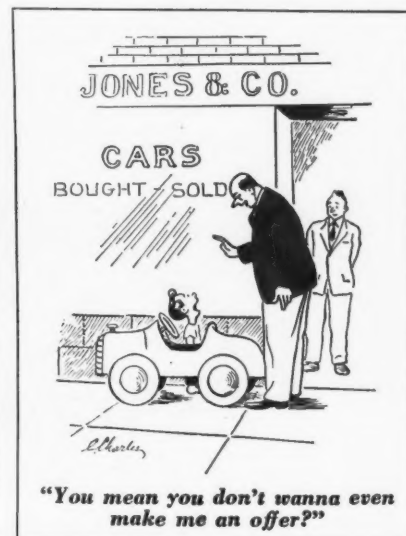


Another feature of the chrome-finished Vis-O-Lite is the elimination of marring and scratching of the area about the dashboard's lighter receptacle.

## 107. 15 Hp Compressor

Westinghouse Air Brake Company: A 15 h.p. size "Y" compressor, designed to meet large capacity service demands, has a new low pressure cylinder head with increased valve capacity. A large intercooler and strategic location of final discharge pipe are instrumental in rapid heat removal by the large fan flywheel. Mounting is on a 120 gallon tank.

(Continued on page 164)




"You mean you don't wanna even make me an offer?"





## LISTEN to Your Compressor...

*too frequent running means trouble!*



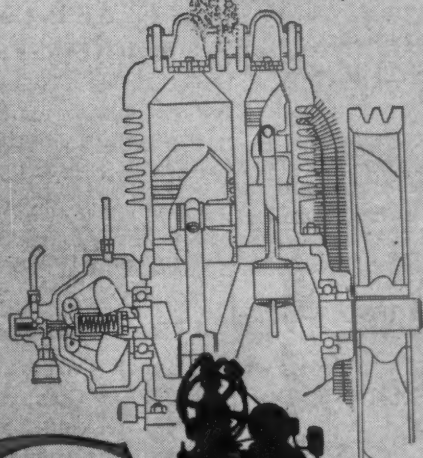
### exclusive DOMED PISTONS and cylinders... CUT RUNNING TIME!

A superior engineering point of difference is apparent when you look at Champion's Aero-Dynamic pistons and cylinders. They are domed to eliminate turbulence by funneling compressed air from the extreme top of the cylinder. This keeps air and cylinders cooler, reduces running time and insures greater economy. This superior engineering design—combined with such other Aero-Dynamic features as wear-resisting plate valves, automotive type connecting rods and bearings, and separate crankthrows for each connecting rod—is the reason for Champion's lower running time and longer compressor life.

If your compressor is running nearly all the time it is slowing down your mechanics by not delivering the pressures you need to speedily operate pneumatic tools, lifts, etc.

Listen to your compressor—if it runs nearly all the time, you'll be needing a new compressor soon. See your Champion Jobber or write today for the new Champion Catalog.

CHAMPION PNEUMATIC MACHINERY CO.,  
832 N. Pleasant St., Princeton, Illinois



# CHAMPION

**AIR COMPRESSORS**

CAR WASHERS • AIR HOSE REELS • SERVICE TOWERS • CEILING SWIVELS



For further information use postcard on page 73

## 108. Paint Matcher

Acme Quality Paints, Inc.: The Acme Color Eye now has an improvement with the new Micro-Tip. This metal fixture on the Color Eye's light beam rod extends below the illuminated rod into the paint. The rod need not touch the liquid, thus prolonging the life. The Color-Eye is an in-

strument for intermixing of tinting colors.

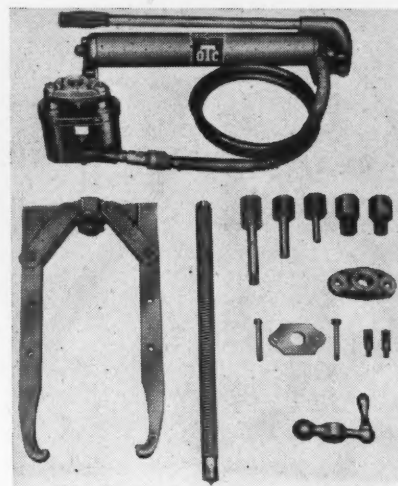
## 109. Radiator Cleaner

Permatex Company, Inc.: A complete cooling system service in one package, Permatex Cooling System Cleaner, Radiator Cement and Rust Preventor is furnished as a single unit in an eighteen ounce

can. The cleaner is in the upper compartment of the package; radiator cement and rust preventor is in the lower compartment. The cleaner is run through the cooling system as per instructions. The water is drained and the radiator rebuilt. Then the lower compartment contents are added to seal and protect the system.

## 110. Puller Set

Owatonna Tool Company: A new conversion set adapts OTC screw operated pullers to the OTC



Power-Twin Hydraulic Puller. Set consists of Y-17, 17½ ton Power-Twin Ram and Pump assembly plus adapter parts.

## 111. Acid-Core Solder

Kester Solder Co.: Kester Solder is said to be made from the finest grades of tin and lead commercially available. The acid flux used in this solder is designed to assure the fastest possible fluxing action. It is available in 1 lb., 5 lb., and 20 lb. spools.

## 112. Compressor

Lynch Corporation: Model 100 PAR Air Compressor features a new delayed starting control which is claimed to save starting current by allowing the two motors to start independently. The PAR Model 100 features: two 4 cylinder two stage compressors with fan spoke fly wheels, fin-type inter coolers and after coolers, motors wired to enable motors and compressors to run independently

(Continued on page 166)

**NEW!! NEW!! NEW!!**

# FISH-EYE KILLER

**ELIMINATES FISH-EYES IN  
REFINISHING SILICONE POLISHED CARS!**

**DON'T WAIT UNTIL FISH-EYES APPEAR  
USE FISH-EYE KILLER IN EVERY PAINT JOB**

- FISH-EYE KILLER is a special substance that is easily added to your standard hot or cold lacquers or enamels before spraying.
- It saves hours of labor because it eliminates special multiple treatments to remove silicones.
- FISH-EYE KILLER is completely harmless to finishes . . . will not change paint colors. Treated paint stays permanently fish-eye proof whether used at once or stored for long periods.
- FISH-EYE KILLER can be used on any car or any finish whether it has been siliconed or not.
- FISH-EYE KILLER was originated by the developers of Silicone automotive polishes. Fish-Eye Killer's performance in the field for over two years is your guarantee of complete satisfaction. Use no imitations. Send for technical bulletin.

easy  
to  
use

Clean off grease and wax thoroughly in the usual way with wax remover; then put only one eye-dropperful (dropper furnished with each bottle of FISH-EYE KILLER) in each pint of your standard paints or primers thinned to spraying viscosity. Agitate slightly — then spray. Takes less than a minute.

**\$2.00**  
per bottle



**ORDER NOW FROM YOUR JOBBER**

### WAREHOUSE DISTRIBUTORS

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|---|---|---|
| 1. Solac Sales Co.<br>1618 Fulton St.<br>Brooklyn 13, N. Y.           | 3. Automotive Warehouse Co.<br>3150 Locust Boulevard<br>St. Louis 3, Missouri | 5. Auto Paint & Supply Co.<br>11 Main Street, S. E.<br>Minneapolis, Minnesota |
| 2. Atlanta Warehouse Co.<br>596 Spring St., N. W.<br>Atlanta, Georgia | 4. Miedtke Paint Co.<br>4421 W. North Avenue<br>Milwaukee 8, Wisconsin        | WEST COAST JOBBER<br>6. Chandler & Lyon Corp.                                 |

**TONE MFG. COMPANY 710 Monroe Ave., N. W. Grand Rapids, Michigan**



# MONMOUTH

*first with the finest*



He stores a  
million dollars  
worth of  
accuracy here!

THIS man is responsible for the tools and dies that check and make the many Monmouth Bearings so essential to the servicing of bearings for automobiles and trucks as far back as the twenties. Some of these dies and tools are so accurately finished, special gauges are required to measure them.

This kind of precision from tools to finished products is responsible for the dependability and satisfaction built into all Monmouth Bearings. If you want to be sure that the part you sell or use is the finest, just look for the Monmouth label—it is proof that you have the first in the field, and the finest modern machinery and methods can produce.



**THE CLEVELAND  
GRAPHITE BRONZE CO.**

REPLACEMENT SALES DIVISION  
6345 Carnegie Ave. • Cleveland 3, Ohio

**CGB FIRSTS:** The development of continuous strip casting, 1929—thinwall babbitt lined steel-backed bushings, 1931—continuous casting of copper lead on steel strip, 1934—tri-metal bearings, 1938—Micro Bearings, 1939—Clevite 77, 1944—and others which have helped to revolutionize the lined bearing industry.

Chilton's MOTOR AGE, JANUARY, 1952



For further information use postcard on page 73

of each other to insure a continuous supply of air, rocking saddle motor adjustment assuring positive alignment, 130 gallon ASME air receiver and two non-pulsating check valve assemblies.

## 113. Cleaning Kit

The Curran Corporation: The new "liquid tool," used at engine

tear-down and rebuilding, is available in kit form from Curran Corporation. Known as the 60 gallon Gunk Hydro-Seal Kit, it comes ready to use and can be used at room temperature. It is said to eliminate carbon scrapping of cylinder heads and will clean the water side of the cylinder head to proper thermal efficiency.

# EXTRA! business for YOU!

WITH

**SIMONDS**  
ABRASIVE CO.

Grinding Wheels



1952 FORECAST 1952  
23½ Million Cars and  
Trucks Now in 3 to 10  
Year Age Bracket.

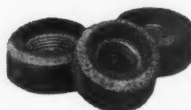
A bumper-to-bumper year ahead for service shops! Countless grinding jobs will be needed to keep these aging cars road-worthy. Deal *yourself* in! Ask your jobber for Simonds Automotive Grinding Wheels . . . the complete line . . . the same wheels used by leading car makers in building new cars.

**FOR ALL GRINDERS** Alberson-Sioux, Black & Decker, Cedar Rapids-Kwik-Way, Keystone Reamers, K. O. Lee, Lisle Corp.

**FOR ALL JOBS** Valve seat grinding, valve refacing, crankshaft regrounding, brake drum grinding, con rod grinding, piston grinding.

**SIMONDS ABRASIVE COMPANY**

Tacony and Fraley Streets, Philadelphia 37, Penna.



## 114. Chrome Protector

Liquid Glaze, Inc.: Chrome-Gard is said to be especially effective



tive in protecting the "flash" chrome trim. It is sold with a rust dissolver solution, Chrome-Gard is also suitable for restoring and protecting weathered chrome on older cars.

## 115. Shock Absorber

Heckethorn Mfg. & Supply Co.: The Columbus luxury ride shock absorber has a piston of unusual design which permits the liquid to pass around the outside of the piston and also through the valves under controlled conditions. The piston also contains a nylon ring, as a thermostatic element, for controlling liquid flow in proportion to the temperature changes. The unit is mounted in the reverse of standard methods, so that the rod comes from the bottom of the



single cylinder. Provision is made for the air to be separated from the hydraulic liquid and lodged permanently at the top.





"Whenever you take out an oil seal, always replace it with a new one..."

With National assortments, you have the right seals when, where you need them. Cabinet comes with the deal, jobber keeps stock up. Assortments "tailored" for different needs. Ask your jobber, today!

...and be sure the new seal is a National! Installing new seals saves time and work, makes extra profit and insures a good, dependable job. No time lost wiping and cleaning the old seal, no worry about seal failure. (Even expert examination doesn't always show when an old seal is no longer trustworthy.) So play it safe—whether you're working on Doc Jones' new sedan, a panel delivery, a pre-war convertible or a big fleet rig. Replace with new National Oil Seals—every time!

#### NATIONAL MOTOR BEARING CO., INC.

General Offices: Redwood City, Calif. Plants: Redwood City, Calif.; Van Wert, Ohio

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#5512 For lube stations. 58 popular front wheel seals.

#5511 For garages. 114 fast-moving front, rear seals.

OIL SEAL ASSORTMENTS TO FIT YOUR NEEDS



Support this industry wide program



**NATIONAL**  
OIL AND GREASE SEALS



Approved original equipment for all cars, trucks, busses and tractors.



## Lincoln Design . . . . Continued from Page 49

is new, of the simple rubber-bounded flywheel type.

Discarding the former camshaft gear drive, the Lincoln now employs a silent timing chain drive. The water pump is mounted integrally with the block. The fan is driven by means of a narrow wedge type belt.

Main bearing journals have a

nominal diameter of 2 5/8 in. lengths of the journals, starting with No. 1 being as follows—1.81, 1.130, 1.130, 1.130, 2.010 in. Connecting rod bearings have a nominal size of 2.250 x 0.814 in.

Being a high compression ratio engine, with an initial compression ratio of 7.5 to 1, the Lincoln engine will be timed for optimum

operation on "premium" fuel. However, with minor adjustments, it can operate on "regular" fuels with slight sacrifice in output. The engine features a special high turbulence combustion chamber, which, in combination with mechanical octane improvement features, is expected to produce superior performance and increased fuel economy.

One of the exceptional accessory features on this engine is a radically different type of carburetor supplied by Holley for this application. It is uniquely adaptable to an overhead valve V-8 where low hood height is desired, since the hat-type oil bath air cleaner is mushroomed over the carburetor and serves as the outer housing for the carburetor. It is a dual carburetor of concentric bowl type with the entire metering system at the center line of the fuel bowl.

The chassis frame is entirely new, with an I-beam section X-member and five cross members. Unique feature is that one of the cross-members is fitted at the center of the X-member, thus making for maximum beam stiffness as well as torsional rigidity. Another innovation is found in the discarding of the usual heavy front cross-member. Instead there is a narrow but rigid cross member at the extreme front end of the frame, ahead of the engine, and a husky tubular member about midships of the engine. In addition, the side rails are deeply formed at the front to provide a completely integral mounting for knee action coil springs.

Under-hood space is quite compact and because of the location of the tubular member, mentioned above, the engine oil sump is located in front to provide the necessary clearance. Incidentally, the two forward engine mounts are located on the tubular member. To facilitate maintenance operations with the new layout, such accessories as the full-flow oil filter, fuel pump, generator, and oil pump, all are located on the engine where they are accessible from underneath the chassis.

Examination of the chassis also  
(Continued on page 170)

**Service  
any  
car  
on  
the  
road**

**with AUTOPULSE electric fuel pump**

When a driver calls for it, you want to be able to supply the right fuel pump. You do not want to be forced to send the sale over to a competitor. You can take care of all fuel pump replacements with one single Autopulse model. With the Autopulse Counter Display Kit you can fit all cars, for it contains:

- 1 Pump to fit Ford-built cars.
- 1 Pump to fit Chrysler-built cars.
- 1 Pump to fit all others.

No need to tie up a lot of money for inventory of all the thousand different models of fuel pumps—just stock Autopulse and the Cam pump models which are most in demand, and you are ready to fit any car that drives up to your shop. You will be surprised how you can increase your fuel pump business, if you are prepared for it. Write for details of the "low inventory" Autopulse stock plan. Autopulse is fully guaranteed and has a liberal trade-in allowance for repairs or replacements.

**AUTOPULSE** *the heart of your motor*

AUTOPULSE CORPORATION 218 E. Dowland St., Ludington, Mich



# MOLDED DOR-TITE *Door & Trunk* GASKET

## YOUR MOLDED DOR-TITE PRIZE PACKAGE IS LOADED WITH PROFITABLE SURPRISES



**EXCLUSIVE CLUTCH-FEED DISPENSER . . .** Simple, convenient, protects and preserves. Provides just the right tension for smooth feed-out with positive control. The Dor-Tite can't snarl up—the square package can't roll away. It keeps out light and dust and protects the Dor-Tite until it's used.

**TYPES TO FIT MOST APPLICATIONS . . .** Molded Dor-Tite comes in sizes and shapes that fit the majority of cars and commercial vehicles. Both the door types and trunk types come in the exclusive pull-out dispenser, packed in shop-size lengths.



**NON-STRETCH CONSTRUCTION . . .** No stretching or creeping with Dor-Tite, no wrinkles. The door types are made with an imbedded cord that assures perfect positioning.

**DUPLICATES ORIGINAL EQUIPMENT . . .** Molded Dor-Tite makes it easy for you to offer "like-new" applications. Note the color of Molded Dor-Tite—it's solid black, without a speck of mica dust to gray it.



**DEPENDABLE ADHESIVE . . .** Dor-Tite is easy to apply—and it stays put. The factory-applied adhesive on the door types never deteriorates and, like the Durkee-Atwood Liquid Adhesive used for trunk applications, is especially formulated for tack and strength.

**FINEST QUALITY . . .** Leave it to Durkee-Atwood, the originator of sponge rubber gasket, to bring you the finest in material, the most uniform in shape. You can be proud of every installation!

### THIS IS THE SEASON FOR EASY PROFITS WITH ALL-PURPOSE STANDARD DOR-TITE

Sell Standard Dor-Tite for home use—for weatherstripping doors and windows and its many other applications around the household and automobile. Standard Dor-Tite now comes in either black or Non-Stain (off-white in color). Feature both—they are attractively priced, profitable display items. Packaged in handy 10-foot rolls.



TODAY'S THE DAY  
TO SEND FOR FREE  
MOLDED DOR-TITE  
INFORMATION



Durkee-Atwood Company, Dept. MA 1  
Minneapolis 13, Minnesota

Gentlemen: When an idea appeals to me I want to know more about it. Send your catalog and the name of your nearest jobber.

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## DURKEE-ATWOOD CO.

MINNEAPOLIS 13, MINNESOTA



will show that the X-member crowds the muffler mounting. Accordingly the muffler has been built in two sections with the resonator section in front.

The front suspension systems stems from engineering studies over a period of some years, the objective being to reduce friction and steering effort without me-

chanical complication. On the other hand, the details of the installation have been dictated by the present chassis layout.

The front suspension is mounted to the front wheel spindle on special universal ball joints for the upper and lower suspension arms. Thrust is taken on ball bearings in the lower joint. It turned out

that the resulting suspension was so friction free as to require damping. This is accomplished by the use of small Belleville type washers stacked in the upper end of the upper arm joint as shown. It is claimed that steering effort now is so light that it was found feasible to reduce overall steering ratio.

The ball-joint mounting at the spindle has simplified the design of this part by the elimination of the usual king pin. Instead, the spindle has two terminal ends, one extended upward for the upper arm mounting, the other, downward for the lower arm mounting. Owing to the chassis changes at the front end, the sway bar has been changed to link type. Steering geometry is essentially the same as before, except that the linkage is mounted compactly back of the tubular cross-member.

Rear suspension features remain about the same. Rear shock absorbers are oversized, mounted in sealegs fashion to minimize axle kick-up.

Another feature is the adoption of a new type battery with a rubber case and 63 thin plates, smaller in size and 10 pounds lighter than the previous one. It is mounted directly under the right front toe board.

The brake system is new and the drum has been reduced from 12 to 11-in. in diameter. The master cylinder for the hydraulic brake system now is mounted on the front of the dash. The suspended brake and clutch pedals are pivoted in a bracket mounted between the dash and instrument panel.

## SOUTH BEND 16-24" LATHES

**Big-Job Capacity  
All-Job Accuracy**



16-24" x 6' Quick  
Change Gear Lathe

Here's the lathe that will handle all of your work. Its 24-1/4" swing will take over-size jobs, including large brake drums . . . this is especially important if you are doing farm equipment or job work. Yet, you can handle routine collet, chuck and between-

centers work easily and accurately. This versatility will make your equipment dollars go further. Send today for catalog.

**SOUTH BEND LATHE**  
SOUTH BEND 22, INDIANA  
Building Better Tools Since 1906



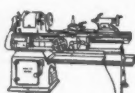
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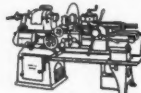
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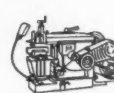
☐ 10" to 16" FLOOR LATHES



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Name \_\_\_\_\_ Company \_\_\_\_\_  
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"Yes Sir, this stuff really cleans out a motor!"



# NOW! FOR OLD OR NEW CARS

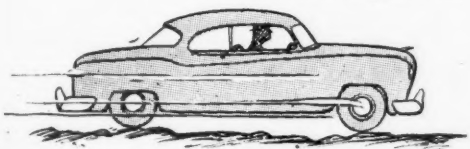
an adjustable

## COIL-SPRING BOOSTER

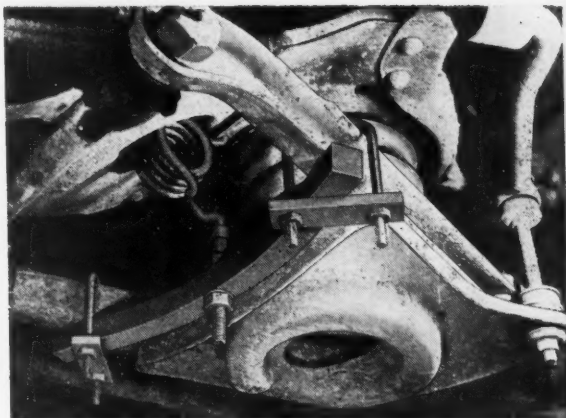
Dealer Net

**\$4.95 per set**

f.o.b. Davenport, Ia.



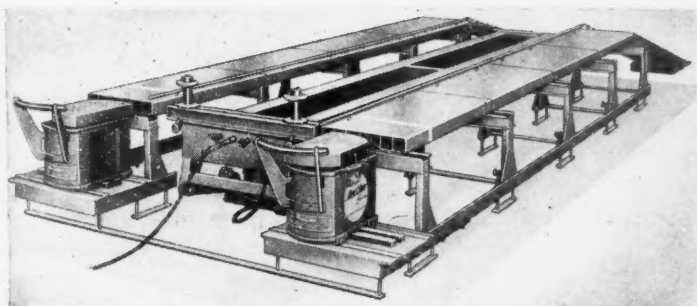
INDIVIDUAL COIL-  
SPRING ADJUSTMENT  
AND BOOSTER



The new Bee-Line booster corrects sagged coil springs on old or new cars. The booster will add more spring control over all roads for a better ride. No more half measures with spacers which do not correct, but compress an already sagged spring. Whether the car is ten days or ten years old this booster with adjustments on both sides to raise each side to the required height will correct the sagged springs and result in a better than ever ride.

The coil spring booster will not fit on some models of Chevrolet, Nash, Studebaker and Hudson.

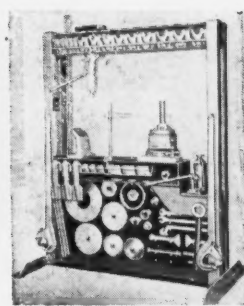
## YOU EARN GREATER PROFIT WITH *BeeLine* EQUIPMENT



The four-section Advanced Aligner, with 15' frame press. Also available from one section front end machine to 8-section frame straightener with 25' airlift frame press.



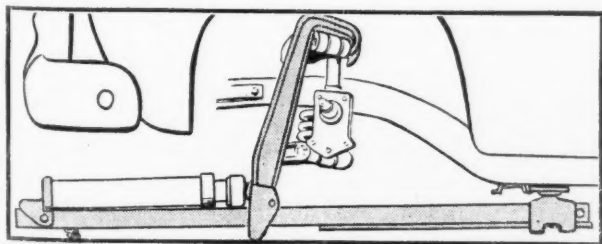
The Magnetic Camber-Caster-Kingpin Gauge. Secured solidly to wheel by magnets. Fits under fender skirts.



Wheel, Hub and Brake Drum straightener, complete with tools in one unit.



Wheel centering and Toe-In Gauge. Accurate reading on both ends of gauge. Held by spring tension.



Knee-Action corrector reverses the forces that have caused Caster or Camber misalignment. Save hours of time and increase profit with this handy tool.

### PLEASE MAIL COMPLETE INFORMATION OF THE FOLLOWING ITEMS CHECKED

- |   |   |
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| <input type="checkbox"/> Coil Spring Booster  | <input type="checkbox"/> Wheel & Hub Straightener |
| <input type="checkbox"/> Frame Straightening  | <input type="checkbox"/> Wheel Balancer           |
| <input type="checkbox"/> Front End Machines   | <input type="checkbox"/> Toe-In Gauge             |
| <input type="checkbox"/> Magnetic Wheel Gauge | <input type="checkbox"/> Knee-Action Corrector    |

NAME .....

ADDRESS .....

CITY .....

STATE .....

***BeeLine co.***

DAVENPORT, IOWA

U.S.A.



# Electro-Hydraulic . . . Continued from Page 85

acting cylinder when the control valve is moved in or out. This moves the piston up or down, as the case may be, and forces fluid from the other side of the cylinder back into the reservoir.

When trouble is encountered with this system, the probable causes can be boiled down to low battery, low fluid level, improper

alignment of the top or windows, defective power unit, defective control switch, defective circuit breaker or inoperative solenoid relay switch. The following troubleshooting guide should be helpful in servicing the electro-hydraulic system.

**One window will not quite close:**

- (a) insufficient fluid

(b) window binding  
**Two windows operate from one switch:**

- (a) wires touching on cylinder solenoid circuit

(b) pump pressure too high  
**Windows, seat, and top fail to operate:**

- (a) battery gravity low
- (b) defective circuit breaker
- (c) insufficient fluid
- (d) defective solenoid relay switch

- (e) defective pump motor
- (f) battery ground wire loose or terminal in control circuit loose or corroded

**One window only, or seat fails to operate:**

- (a) defective control switch
- (b) defective operating cylinder solenoid valve
- (c) window or seat binding
- (d) open circuit or short circuit in wiring

**Windows operate slowly in down direction, seat operates slowly in backward direction, and top in either directions:**

- (a) fluid congealed due to cold, or not having been changed at regular intervals

- (b) pump relief valve piston sticking

**Windows operate slowly in up direction and seat in forward direction only—top in either direction:**

- (a) pump relief valve sticking

**Windows, seat and top all operate slowly in either direction:**

- (a) bent or crimped fluid tubing
  - (b) pump relief valve sticking
- The battery should always be tested before investigating further, as a weak battery will hamper the operation of this system.

When hydraulic fluid is low, the power unit will be noisy. If any part of the system is operated, a chattering will occur inside the pump. Check the fluid level with the windows lowered and the seat moved back to remove all fluid from the cylinders. Use only a high quality brake fluid in this system. The fluid should be replaced each Spring or Fall or every 5,000 miles and the reservoir cleaned out with alcohol at the time of changing.

The fluid can be drained by re-

(Continued on page 174)

 <p><b>SPRAY GUNS</b> 36 different models</p>	 <p><b>GUN NOZZLES</b> 1050 combinations</p>	 <p><b>OIL &amp; WATER EXTRACTORS</b> 7 models to supply clean, dry air</p>
 <p><b>UNDERCOATING EQUIPMENT</b> special guns, 9 models of pumps</p>	 <p><b>AUTO SPRAY BOOTHS</b> meet health &amp; safety standards</p>	 <p><b>AIR COMPRESSORS</b> light, medium and heavy-duty</p>
<p><b>Binks</b> <i>EVERYTHING FOR SPRAY PAINTING</i></p>	 <p><b>SIPHON CUPS</b> 6 models available</p>	 <p><b>HOSE AND ACCESSORIES</b> 12 types of hose, all accessories</p>

## What this COMPLETE LINE OF SPRAY PAINTING EQUIPMENT means to you in times like these

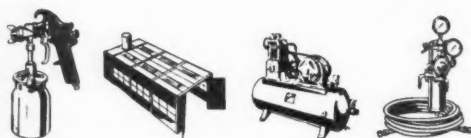
Here is a single source for everything you need for spray painting...from siphon cups to undercoating equipment.

The completeness of this line makes buying easier and delivery better.

The standardization of Binks equipment protects you against delays and repair difficulties. Standard pipe threads are used on all Binks equipment... and many parts are interchangeable.

Finally, every item is designed to meet the specific needs of the auto industry—and so you can count on Binks equipment to produce factory quality finishes.

**Ask your jobber** about Binks complete line and get set for the future now. Or write us for full information and prices.  
Binks Manufacturing Company, 3124-34 W. Carroll Ave., Chicago 12, Illinois.



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# Does more than any other alignment machine

## **Dyn-A-Lyzer**

GUARDIAN OF SAFETY

### Dynamic 4-wheel Alignment Analyzer

## **ACCURACY never before EQUALLED**

Uses surveying principles to set Toe and Centered Steering Position based on proper tracking of all four wheels.

**COMPLETE**—worth more than any other alignment service and they pay more for it.

**FAST**—precision methods avoid guesswork. Complete Dyn-A-Lyzer service requires less time than any other alignment service. Users report 20 minutes average for complete check and correction.

**ACCURATE**—builds prestige. Avoids time-wasting complaints and costly adjustments.

**IMPRESSIVE**—revolves the wheels and demonstrates wheel alignment under true driving conditions.

**EASY TO USE**—on the job instructions start profit flow the day your Dyn-A-Lyzer is installed.

Whether you want to make more service profit, enjoy the prestige-building power of outstanding service superiority, or provide MODERN Steering Correction Service for your customers, you need Dyn-A-Lyzer Service.

**Send for complete information today.**

**Revolves the wheels and checks alignment under true driving conditions—unaffected by inaccuracies of tire, rim, or hub.**

### **Why Mechanics LOVE the Dyn-A-Lyzer**

- No positioning of car square with rack.
- Revolves the wheels—unquestioned accuracy.
- The flick of a switch restores all parts to normal position—no rolling—no shaking.
- Checks wheel runout in a matter of seconds.
- Checks Caster, King Pin Inclination and Turning Radius in a single operation.
- A glance in the Tractoscope checks tracking.
- Sets Toe and Centered Steering Position to hair-line accuracy in a single operation.
- Shows when the right correction is being made and exactly how far to go. No guesswork.
- No elaborate instrument checking.

1

#### **MANBEE EQUIPMENT DIVISION**

185-A1 North Wabash Ave., Chicago 1, Ill.

Send complete information about the Dyn-A-Lyzer<sup>®</sup> Manbee's Dynamic 4-Wheel Alignment Analyzer.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



## Electro-Hydraulic . . . Continued from Page 172

moving the reservoir from the pump and draining the contents while the windows are lowered and the seat is to the rear, then disconnect the fluid return line at the pump and work the top down by hand while the remaining fluid is allowed to drain into a receptacle.

To bleed the system after the fluid has been replaced, operate

the top, seat and windows up and down until all air has been expelled from the system. A chattering in the pump indicates the presence of air or low fluid. Then bring the fluid in the reservoir up to the proper level mark.

Be sure, when any hydraulic line is disconnected, that the pump is inoperative, as fluid may be squirted onto the finish or en-

gine. The safest method is to disconnect one battery terminal. If any part is to be moved manually, provision should be made for catching fluid which may be forced from the line. If this hydraulic fluid contacts a painted surface the finish may be damaged, so it's a good idea to have plenty of rags around. Also, this fluid is inflammable and should be handled accordingly.

Low fluid level indicates a leak, which should be located as quickly as possible. The hydraulic leak, besides causing eventual failure of the system, can cause damage to painted areas. Naturally the most readily accessible fittings and connections should be inspected first and then the hidden ones. Often a leak can be detected by running the hand along the lower weatherstrip at the drain channels on the doors. Also, the odor of brake fluid helps in tracking down leakage.

Binding door windows will cause improper operation of the hydraulic mechanism. The front window channel, when out of position, may cause the window to bind as it is raised or lowered. This channel is adjustable from below. The door upholstery is removed and the retaining screws can be reached through two holes in the door frame. Elongated holes on



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AMERICAN SMELTING AND REFINING COMPANY • 120 BROADWAY, NEW YORK 5, N. Y.



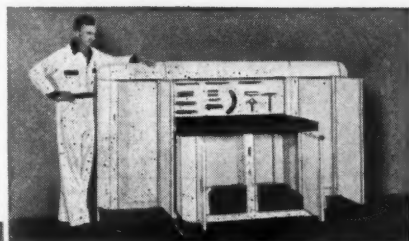
the lower part of the channel allow fore and aft adjustment of the channel for proper alignment. In order to permit motion of the window wing along with the door  
(Continued on page 176)



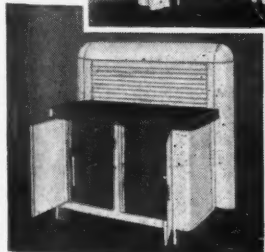
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 Functionally designed to  
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 your space...and fit  
 your budget, too!



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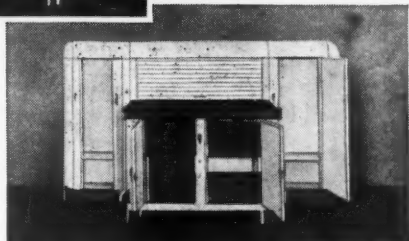


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Model J 5141-AX—Basic Merchandiser sections plus tool panel curtain, drawers, cabinet.



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Each ruggedly built, space-saving unit contains liberal storage and work areas. And they're engineered to give you complete flexibility of arrangement. So select the low-cost sections that fit your space . . . and fit your budget, too! Choice of colors, green and black or red and white, in durable baked enamel. Prompt delivery, if you act soon! Send coupon today for illustrated brochure and complete price information.

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window channel, the two window wing front support shaft locking nuts at the support bracket, as well as all of the channel retaining screws, should be loosened while adjustment is being made. Then the window wing and door window are free to be moved forward or back for correct adjustment. Side adjustment is controlled by loos-

ening the top screw at the front face of the inner door panel (above the door lock). This screw can be identified by its elongated hole in the door panel. The elongated hole permits the window assembly to be moved from side to side once the screw has been loosened.

All adjustments of the rear

quarter window can be made by loosening the screws indicated in Fig. 3. The third screw, invisible in the illustration, is located between the tube and cylinder as indicated by the circle. When these screws are loosened, the assembly can be moved up and down or back and forth, as necessary for alignment.

For proper operation of the top raising and lowering mechanism, the adjustments of the top assembly must be correct. Otherwise, there will be binding and strain within the assembly. Adjusting the side rail is important to a correct fit. It can be raised or lowered by loosening the screws and shifting the serrated bracket shown in Fig. 4. To eliminate a hump or sag in the center of the side rail loosen the lock nut as shown in Fig. 5, and turn the screw out to raise the hinge or in to lower it. The inner ends of the two rails, where they join at the hinge, should be a little above the horizontal position.

If the header, or front bow, does not lower far enough to allow the top to be locked to the windshield easily, loosen the screws shown in Fig. 4 and move the serrated plates upward until the top pulls down properly.

If the windows, seat and top all operate slower than normal, the pump pressure may be too low (maximum pressure 260 lbs.). This may be caused by a stuck regulating valve. To correct this, remove the copper-plated hex



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*Ernie D. Dineen*

**"Er... to begin with, Mrs. Post..."**



plug from the rear of the pump casting and take out the regulating valve and spring. The stuck valve can be extracted with "mechanical fingers." Examine the valve pump and casing for dirt or other cause of sticking. Clean all parts thoroughly. The pump motor, which is similar to a starting motor, has a solenoid relay switch, also similar to the solenoid relay switch in the starting system. If the pump is inoperative, short around this solenoid. If the pump then starts, the solenoid should be replaced. However, if the solenoid is apparently not defective, short around the terminal posts of the circuit breaker (mounted on the pump upper bracket) and test the operation of the various units. If everything operates properly, the circuit breaker is at fault and should be replaced. When the circuit breaker also tests okay, but the pump still won't work, the cause is a loose connection, low battery, defective pump motor, or defective control switch. The pump motor is serviced in the same manner as a starting motor.

The top operating valve and switch, which is mounted under the instrument panel, directs the flow of fluid to the top operating cylinders and also controls the pump motor solenoid switch. To determine whether this switch is at fault, connect a jumper to the two terminals, one on the bottom and one on the side of the valve assembly. If the top then operates properly when the control is pulled or pushed the internal switch is inoperative and the complete valve and switch assembly should be replaced.

Also be sure that the control is free to return to the neutral position, since if it binds out of neutral, with two passages partly registered, the top may try to operate when the window is raised. Operation of the windows and seat is accomplished by switches which control the pump motor and operating cylinders simultaneously. If a door window is to be raised, for instance, the appropriate switch is flipped.

This starts the pump motor and the entire hydraulic system is pressurized.

If the pump motor is operating but there is no "click" at the solenoid, examine all connections and test for proper current at the solenoid. If the solenoid valve is defective, the entire operating cylinder will have to be replaced, since this is an integral unit. To

test for the window or seat control switches, use a test light. With one lead of the test wire on the terminal marked "Cyl" and the other lead grounded, the bulb should light when the knob is moved in either direction. With one lead clipped to the "Mot" terminal and the other grounded, the light should burn when the knob is raised.

Now better than ever, the MULTISCOPE saves time in tracing and identifying mechanical troubles by sound. It provides a fast, accurate diagnosis of many automobile, equipment and appliance troubles. Simple in construction . . . no electrical connections . . . no radio tubes . . . nothing to go wrong.

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throttle lever slowly until the maximum pressure is indicated, 140 to 160 lbs. Observe the angular reading. It should be 14 to 16 degrees. Move the selector lever to the drive position and repeat the procedures given previously under the reverse. The maximum pressure in drive range should be 120 to 135 lbs. per sq. inch. If pressures are

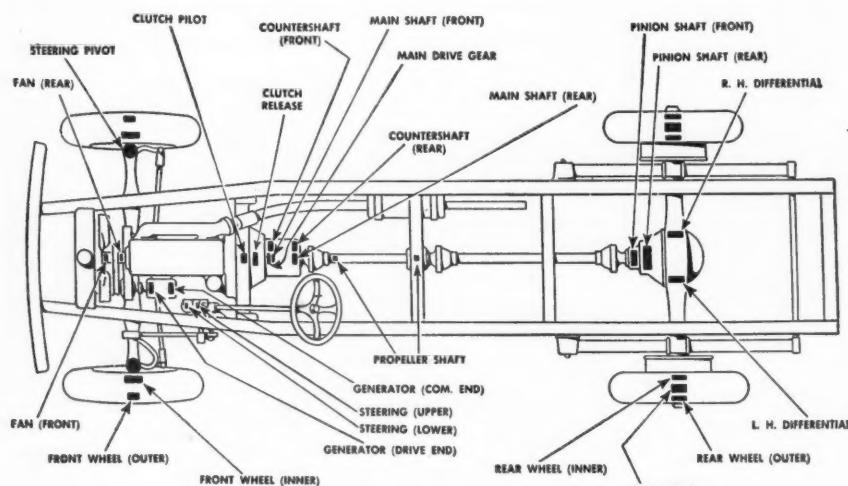
correct and slippage is indicated, then adjust the front and rear bands. If pressures are not correct adjust front and rear bands and clean or replace the valve body. If pressures are still not correct after the bands have been adjusted and the control valve body has been cleaned or replaced, overhaul or replace the transmission

and converter assembly. If pressures are correct after the bands have been adjusted and the control valve body has been cleaned or replaced but slippage is still indicated, overhaul or replace the transmission or converter assembly.

After the necessary repairs have been made, remove the throttle lever protractor gage, and pressure gage. Install the pipe plug then connect the link to the throttle lever. Install the converter air intake screen and duct, and reset the engine idle speed at a normal operating temperature 425 rpm. With the selector lever in neutral position. Adjust the throttle linkage at the upper end of the throttle lever link and "Z" bar, two and one half complete turns off the stop position.

To check the transmission oil level apply emergency brake and place the transmission selector on neutral position. Then run the engine at idle speed for approximately four minutes. Roll back the right hand section of the floor mat to gain access to the fluid level indicator. Remove the floor screws holding the cover plate (Fig. 1).

With brakes applied, and the engine running at slow idle, move the selector lever to the park position. When the engine and transmission have reached normal operating temperature, move the selector lever in all positions to assure fluid distribution throughout the transmission. Clean all dirt from  
(Continued on page 180)



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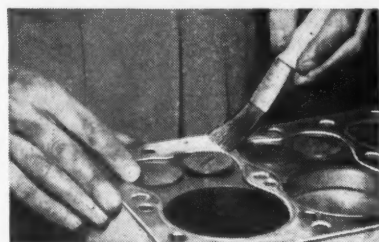
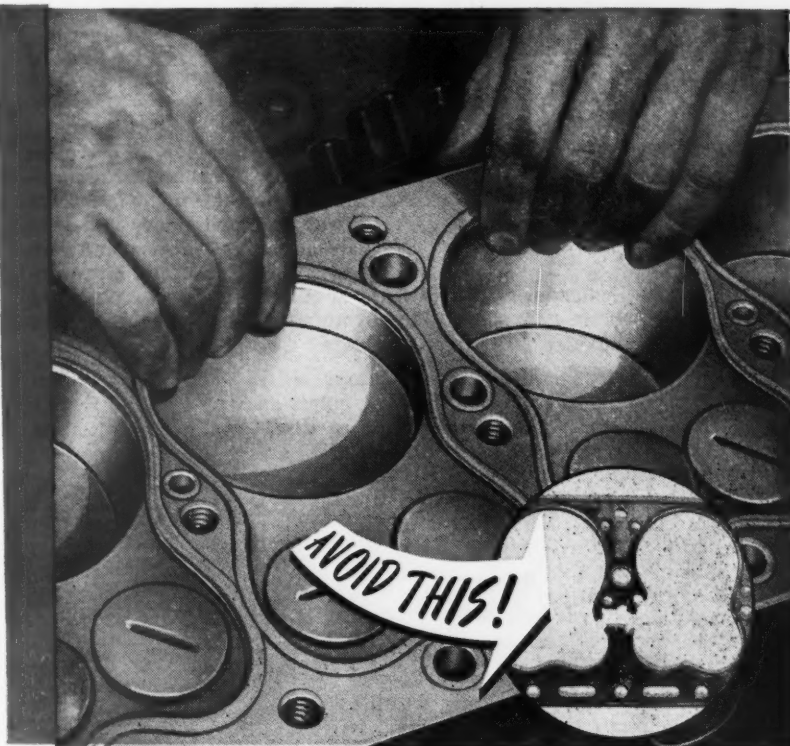
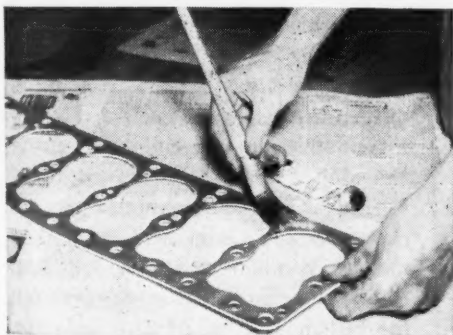
Follow these **4**  
approved procedures  
when  
**REPLACING**  
gasket and head!

## 1. Check Gasket for Correct Fit!

Before installing a new gasket, it's always good practice to check it for proper fit on the cylinder block. Often there is a slight difference between car models that is not apparent by casual inspection. Installing a gasket that does not fit properly will result in trouble and come-backs. Watch out, too, for bent gaskets—although the metal can easily be straightened, a sharp bend usually breaks the asbestos filler, and renders the gasket useless.

## 2. Use Non-Hardening Gasket Cement!

Although most Fel-Pro Gaskets are pre-coated at the factory, many mechanics prefer to apply a gasket cement as an extra precaution. Shellac and other hard drying compounds should not be used for this purpose. Their sealing action is only temporary and dry particles often find their way into the combustion chamber.



## 3. Place Gasket on Block Before Coating Second Side!

The common practice of coating one side of the gasket, then flipping it over on newspaper to coat the other side is not recommended. Most of the gasket compound remains on the newspaper. A better practice is to coat one side first, then place the gasket, coated side down, on the cylinder block and coat the other side. Wipe around combustion chambers to avoid getting compound into the cylinders.

## 4. Use a Gasket Centering Tool!

A gasket centering tool will save installation time, prevent gasket damage and assure proper alignment. You may be able to set a gasket on the block squarely, but as soon as you put the head in place, the gasket is going to move. Gasket Centering Tools, like the Fel-Pro Set, are inexpensive and easy to use. The savings in time alone on a few jobs will more than pay for a set.



**IMPORTANT—Always use new Fel-Pro Gaskets—never install a used gasket, even though it looks like new. A few pennies saved may cost you a good customer and expensive come-backs.**

# Gasket Right with **FEL-PRO** Gaskets!

Gasket Right to  
Stop "Little Drips"



R-3542

Chilton's MOTOR AGE, JANUARY, 1952

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# "That Blinding Snowstorm Opened My Eyes!"



Reading Time: 1 minute, 15 seconds

"The weather department had hung up a blizzard warning," Denny recalls, "and there I was in Michigan with eight cars and four trucks wanted in Iowa. I had just got my auto-

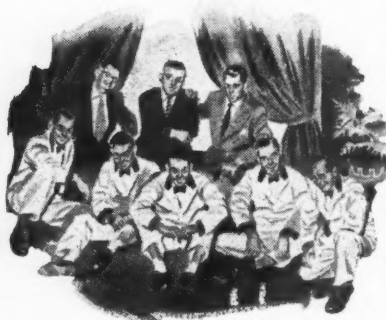
mobile dealership. I knew little about the business, but I did know about customers. They wanted those vehicles, so we drove, shoveled and fought our way through."

Denny's habit of giving customers extra service started when he solved the problem of green goods spoilage in his father's grocery store by peddling door to door. When this business reached a point where he couldn't expand it further, he bought a car and garage with his profits and started his city's first "24-hour taxi service." This service built the business to four cars . . . all the city could support. So again Denny sold out.

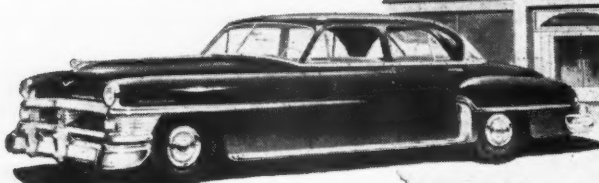
This time a restaurant with pretty girl hostesses and flowers for every customer grew steadily to the limit of the community. It was 1924. Denny switched to the fast-growing automobile business. It was winter and conditions were extreme, but Denny's answer, he says, was the first winter drive-away in the industry through some of the Northwest's worst blizzards.

Denny began selling Chrysler cars in 1924, the first year of Chrysler production. Three of his present employees have been with Denny all of these past 27 years. One other joined him 17 years ago, and another, twelve.

His success sounds simple as Denny tells it. "It is nothing but giving the customer *what* he wants *when* he wants it." Putting this rule into practice has made Denny one of the town's most successful businessmen today — with 53 people on his regular payroll. What's more, he is serving the transportation needs of thousands in his community better than ever before. And while he has grown, he has helped the community grow with him.



Write for our free booklet containing a number of these stories of accomplishments by enterprising men. Chrysler Corporation, 341 Massachusetts Ave., Highland Park 3, Mich.



## Chrysler Corporation

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Fine Cars of Great Value

## Fordomatic . .

Continued from Page 178

the fluid lever indicator cap. Turn the cap one and one-half turns counter clockwise with a pair of pliers, then remove the indicator. If the fluid doesn't read up to the full mark, add fluid as necessary.

To check and set engine idle speed place the selector lever in neutral position. Then start the engine and run the engine until normal operating temperature is reached. Check the idle speed with a tachometer and adjust to 425 rpm (Fig. 2). Check the anti-stall setting by loosening the dash part of adjusting screw (Fig. 2). Hold the throttle lever in closed position and turn the adjusting screw out counter-clockwise until the end of the screw bottoms the dash pot rod.

To obtain the proper clearance between the end of the dash pot rod and the adjusting screw head, turn the adjusting screw in clockwise one and one-quarter turns. The proper clearance is .038 to .040 inch. To check the manual linkage, disconnect the upper end of the manual control rod from the selector arm (Fig. 4). Position the selector lever so that the indicator at the steering wheel is down against the strap in the drive position. Position the transmission manual lever in the drive position, second position from bottom (Fig. 4). Adjust the rod links so that the pin on the sleeve turns freely and enters the grommet in the selector arm, lengthen the rod by turning the sleeve one full turn counter-clockwise. Re-assemble the rod to the selector arm and lock the sleeve in place with a lock nut. Check the alignment of the pointer for all positions of the selector lever.

To check the throttle linkage remove the clip from the carburetor at "Z" bar end at "A" (Fig. 5). Re-insert the rod in the "Z" bar lever and place the tool on the end of the rod at "B" (Fig. 6). With the tool resting on a finished surface of the cylinder block, adjust the rod length to hold the carburetor throttle lever against the idle stop.





Remove the tool and re-assemble the rod to the "Z" bar with the clip. Remove the cotter pin and clevis pin from the upper end of the "Z" bar to the transmission rod and pull upward, gently but firmly on the rod from the transmission throttle lever to hold the lever against the stop at "A" (Fig. 7). Adjust the clevis so that the clevis pin will freely enter the clevis and "Z" bar hole. Lengthen the rod by turning the clevis counter-clockwise two and one-half full turns, then assemble the rod to the Z-bar with the clevis pin and cotter pin at "B" (Fig. 8). Lock the

the selector lever from drive position to low. Instead of shifting to low range the transmission will shift from high to intermediate. When the vehicle speed is reduced to 23 to 27 mph the transmission will then shift into the low range. The manual shift from drive range into low range can be at any vehicle speed. With the car speed at 30 mph. and in drive range, again

shift from DR to Lo range. The transmission shifts into low at approximately 23-27 mph. Bring the car to a full stop and place the selector lever in reverse. Press the accelerator lightly to move the car in reverse. With the car at a full stop, move the selector lever to the park position. This locks the transmission and the car cannot move either forward or backward.



"Look, Horace, the Anderson's have company!"

clevis on the rod with the lock nut while holding the clevis in alignment to prevent binding.

Road test the car to check performance and shift points. Select a smooth level road for the test. Then check the shift from intermediate to high with a light throttle. Place a selector lever in drive position and starting from a stand-still, apply the accelerator lightly but steadily. The shift from intermediate to high should occur between 14 and 19 mph. Allow the car to decelerate until the downshift occurs from high to intermediate. This should occur from 7 to 3 mph. With the car speed below fifty, press the accelerator pedal to the wide open position. This action shifts the transmission from high to intermediate. The downshift occurs only when the car is in high gear and at a speed less than 55 mph. With the car speed between 45 to 50 manually shift

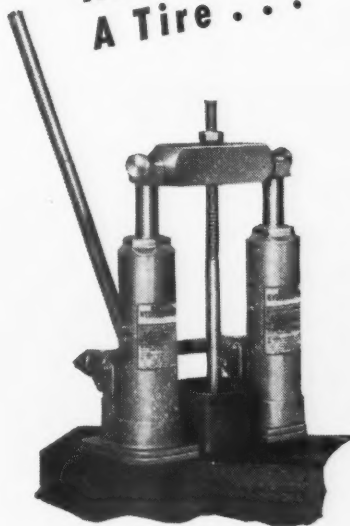
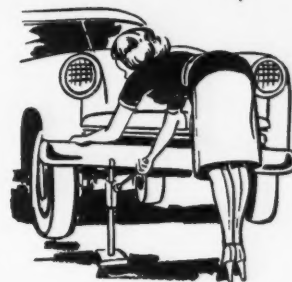
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into a filling station indicates that in a high percentage of cases the car owner is asked, "How many?" in spite of the efforts of many of the oil companies to encourage the simple sales-making question, "Fill 'er up?" The attitude of most of the gasoline station attendants (note that you call them attendants not salesmen) is not to make a sale

but to pump the gas the customer wants to buy.

It makes little difference whether the customer buys one gallon or ten, the routine of the service attendant—with emphasis this time on the word "service"—is to give away as much as he possibly can in the little time that the car owner is willing to let him operate as a wind-

shield cleaner, window washer and free air dispenser.

The "service attendant" feels chagrined if the car owner is in a hurry and does not permit him to spend several minutes of your time to give "free service."

Why shouldn't you have salesmen at the gasoline pumps? Why shouldn't these salesmen be impressed with their responsibility and trained to make sales of as much gasoline as they can, and to sell oil when needed, or lubrication jobs, fan belts, storage batteries, spare tires, lamp bulbs and the countless other items that are "carried in stock."

And the same non-selling philosophy pervades most car dealer

## The New Automatic



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shops. Car dealers have new car show rooms—why not new car sales departments? The service department—not service sales department—is manned with service managers or service inspectors rather than service salesmen.

The non-sales attitude is reflected in the handling of the service customers—the manner in which they are greeted—or in most cases not greeted—the way "orders are written up" rather than sales made and in the manner of collecting bills and delivering cars. The car dealer service selling and customer relations are deplorably bad in most cases, in spite of the continued service programs of the car factories.

The independent repair shops usually act like they are humbly appreciative for the opportunity to work on a car and are generally embarrassed when asked to quote a

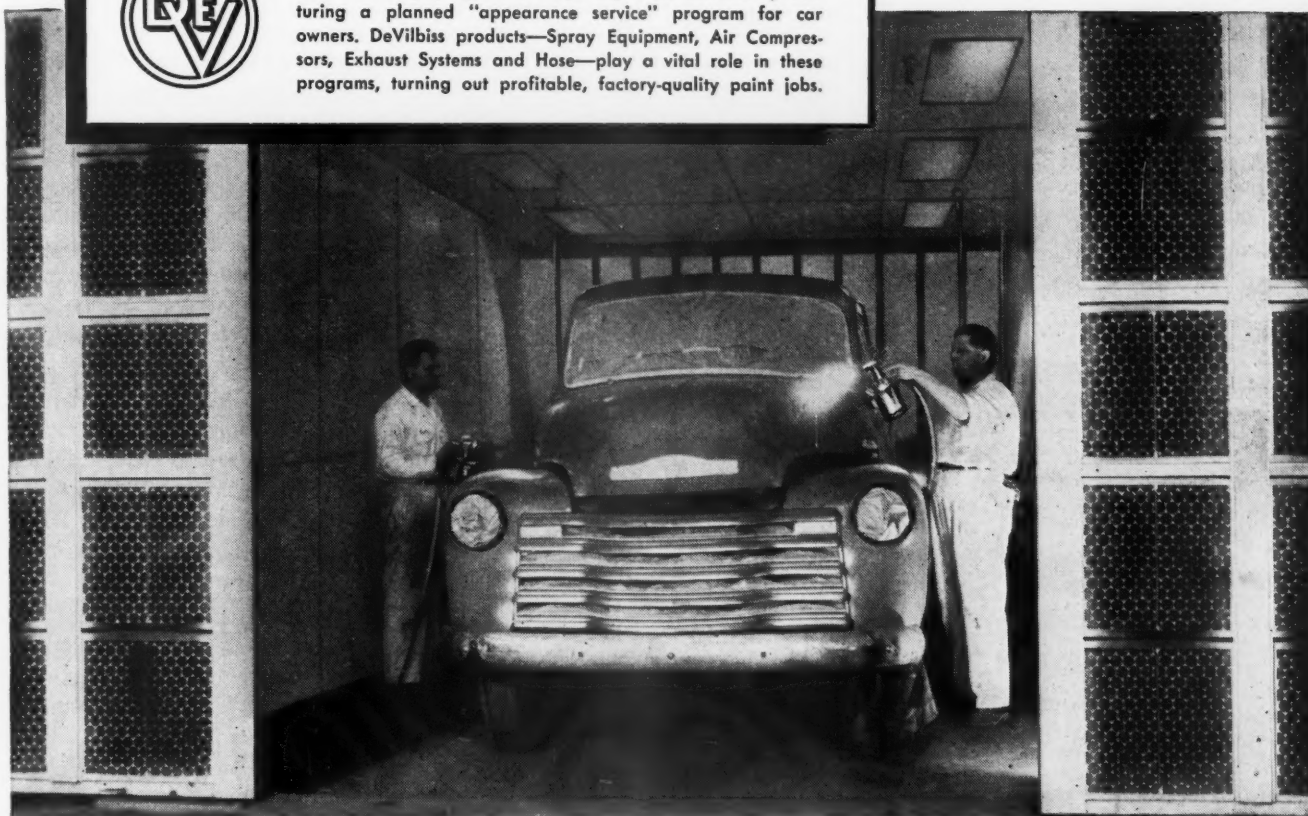
(Continued on page 184)





## PROFIT WITH APPEARANCE SERVICES

Car owners take great pride in the appearance of their automobiles. Many progressive shops capitalize on this by featuring a planned "appearance service" program for car owners. DeVilbiss products—Spray Equipment, Air Compressors, Exhaust Systems and Hose—play a vital role in these programs, turning out profitable, factory-quality paint jobs.



## How to please three people with one paint job

**Here's what** happens when a vehicle (like the truck above) receives a factory-quality paint job in a DeVilbiss Paint Shop:

1. The *customer* is pleased. His vehicle looks like new, makes a better impression on the public, has increased in value.
2. The *shop owner* is happy. It's another profitable paint job, another satisfied customer. He finds that his DeVilbiss

equipment refinishes vehicles better, faster, at lower cost.

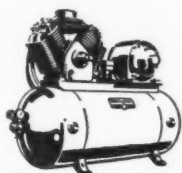
3. The *paint shop operator* is satisfied. He likes working in a DeVilbiss Paint Booth. There's plenty of room, good lighting (because of scientifically planned illumination) and clean, fresh air (thanks to the efficient DeVilbiss Exhaust System). He also takes pride in the professional refinishes he turns out.

**You'll profit** many ways with a DeVilbiss Paint Shop in your business. Your nearest DeVilbiss jobber or Branch Office will gladly give you full details on the wide range of DeVilbiss Spray Equipment, Air Compressors, Exhaust Systems and Hose. Just call or write.

### THE DEVILBISS COMPANY, Toledo, Ohio

Windsor, Ontario • London, England  
Santa Clara, Calif.

Branch Offices in Principal Cities



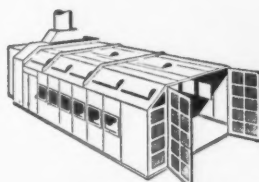
Air Compressors



Hose and Connections



Spray Guns



Spray Booths

FOR BETTER SERVICE, BUY

# DEVILBISS





## Key To Sales . . . . . Continued from Page 182

price or render a bill.

Who are the people that drive into your *automobile service stores*? Did you ever stop to think about that? The people who come to your store are the people who run or work in the other types of stores in your community. They are the people who own or work in the restaurants, the shoe stores, the super markets or food stores, the

clothing stores, the department stores—the people who are always trying to sell you something when you go into their stores so that they can make money to keep their cars running. They recognize you as *their* customer. You should recognize them on the same basis.

When you went to buy a suit of clothes, did you ever have the clothing salesman tell you that you really

didn't need a new suit—that you could get along with the one you have for another year or so.

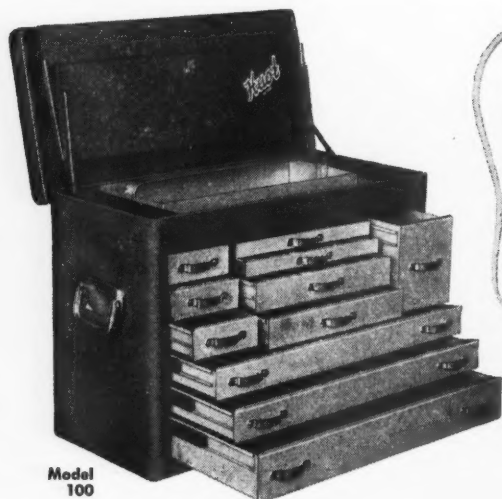
Did you ever have a butcher tell you that you could save a lot of money if you ate more vegetables and cut down on meat? Sound strange?

Well, stop and think how many times you've heard people in your business advise against spending money for a job that the car owner thought he needed or just wanted done for his satisfaction.

"No use buying new tires now. You've got lots of miles in those tires yet." "I wouldn't buy a battery until the one you've got fails. We're always here to answer a service call if you should have trouble." "No hurry about putting anti-freeze in your car. Come around when the weather gets cold."

Maybe these things don't happen in your shop, but they are happening in a whole of a lot of places around these United States of America and what's the result? The customer, the fellow that you want to favor and help save money has a blow-out on the road—and then what happens? He cusses and fumes and blames you because he says—and he's absolutely right—that if you had been on your job, you wouldn't have let him run on tires like that. So you not only lost a tire sale and the profit that you had earned by furnishing free air and other services for months past, but you may have lost a customer.

You try to be helpful and do not urge your customer to anticipate cold weather and put in anti-freeze early. The customer drives out of your place of business. The weather turns cold. Somebody else makes the profit on anti-freeze. Does he appreciate your helpfulness? He is furious with you because you didn't sell him what you should have sold him and saved him the trouble and annoyance of having to stop and buy anti-freeze on the road. Besides, he is mad because the money that he should have spent for anti-freeze was used for non-essential, non-automotive things and now he finds it "inconvenient" to spend the money for the "unexpected" or "emergency" purchase.



*Just like a  
MECHANIC'S  
RIGHT HAND  
MAN*



### HUOT *deluxe* TOOL CHEST

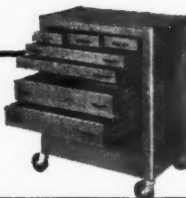
Lots of drawers . . . plenty of usable tool space . . . drawers are lined for the protection of your precision gauges and tools. Will even take care of a husky  $\frac{1}{4}$ " Portable Hand Drill—in extra heavy drawers built to stand rough use. All hardware is plated for long life. Two tone blue and gray oil-resistant Hammerlin Enamel . . . just wipe it off to keep it clean. If you plan to move the chest around, it fits nicely on top of a Huot Porta-Cab. Ask your jobber—or send us his name when writing for literature.

18 $\frac{3}{4}$ "x26"x12"  
11 STURDY DRAWERS  
LOTS OF USABLE TOOL SPACE

#### No. 250 PORTA-CAB

The Porta-Cab is a portable tool cabinet with a built-in chest, combining all the desirable features of a large tool chest and cabinet in one sturdy mobile unit. Model 100, above, can mount on top.

WRITE FOR PAMPHLET NO. 129.



**HUOT** *Manufacturing Company*

585 N. WHEELER AVE. • ST. PAUL W4, MINN.

Please send bulletin on the No. 100 Tool Chest.

NAME .....

ADDRESS .....

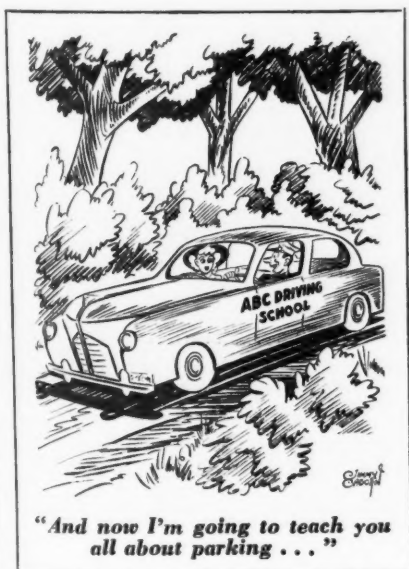
JOBBER'S NAME  
AND ADDRESS .....



## A Good Year . . . . . Continued from Page 55

on the ones still left. Hold on to them by adopting personnel policies designed to compete with anything that might be offered to lure them away. Consider incentive plans, more insurance, and better vacation plans. Make the work attractive and physically less tiring by equipping the work stations with the latest facilities. This is doubly rewarding for the work can also be done faster and better. How can you make the work more comfortable? Did I hear someone say, "What does he want me to do, pamper them?" In these times, it is not considered "pampering" to provide comfortable locker rooms, showers, clean wash rooms and a place to relax. That is the up-to-date, 1952 way of not only holding employees but attracting new ones.

Now give more than passing thought to increasing the efficiency of every valued skilled employee. Find out if eight hours a day are spent employing his skill. Or, is much of it spent waiting for work, moving cars, waiting for parts, or doing unskilled work, such as cleaning parts, removing assemblies, or other work that a trainee might do. You are losing money on him and wasting his "know how" if you do not efficiently organize his operation.



Speaking of trainees, here is where wise management will take care of tomorrow as well as today.

There is plenty of opportunity for even a small service operation to employ trainees. They can be recruited from several sources. Do not overlook the excellent opportunity afforded to employ the physically handicapped. Their loyalty, industriousness, and dependability are being demonstrated daily in service departments all over the country.

An appeal to local school authorities has worked wonders for many dealers. Senior auto mechanics students can be released for half days to work in service departments as part of the school curriculum.

Public schools are much more flexible in their operation than many people realize. An appeal for help can result in valuable assistance. Evening schools or part time

(Continued on page 186)



## PLAY SAFE! BE SURE!

### FEDERAL-MOGUL EXCHANGE INSERT RODS PROTECT YOUR WORK ON EVERY OVERHAUL!

When you say, "guess the old rods will do," you're taking an awful chance! Those invisible thousandths of out-of-roundness can ruin your best overhaul. Don't take a chance! Turn in those

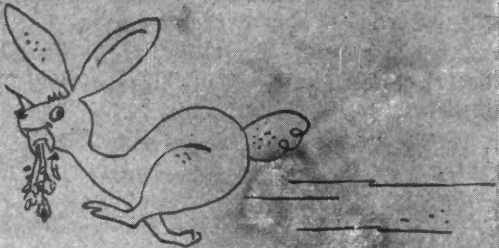
old rods for Federal-Mogul exchange insert rods. Your Federal-Mogul jobber carries them in stock—just like bearings. You can be sure of your work, with Federal-Mogul exchange insert rods — every time!

### FEDERAL-MOGUL SERVICE (DIVISION OF FEDERAL-MOGUL CORPORATION) DETROIT 13, MICHIGAN

#### The Complete Engine Bearing Line:

Engine Bearings (Main, Connecting Rod and Camshaft) ★ Bushings ★ Connecting Rod Service—Reconditioned Connecting Rods, Rebabbitted Connecting Rods ★ Connecting Rod Bolts and Nuts ★ V-Seam Piston Pin Bushings ★ Shims and Shim Stock





# FAST



## KESTER ACID-CORE SOLDER

**FAST** In Soldering Action  
**FAST** In Saving Your Time

Are you stealing "carrots" from your own garden of profits by using "lower price and just-as-good solder," instead of 24 "karat" Kester? If so . . . you're fooling no one . . . not even a rabbit. He knows the genuine product when he sees it!

**KESTER SOLDER COMPANY**  
4242 Wrightwood Ave., Chicago 39  
Newark 5, New Jersey • Brantford, Canada



**KESTER  
SOLDER**

## A Good Year . . . .

Continued from Page 185

schools can handle technical training for service employees. Such classes can be used to upgrade present unskilled employees or as a refresher for skilled ones. As an example, the University of Cincinnati, at the request of the automotive service employers in the area, set up an evening school for auto mechanics that lasted throughout the winter months. Jobbers and manufacturers sent instructors to assist the University with the classes. Many communities have presented similar programs. It is necessary, however, for the employers to make their needs known.

The shortage of skilled mechanics is no temporary condition. The unprecedented growth of the vehicle population, the technical complexity of the vehicle, and the lack of vocational school auto mechanics graduates causes an ever-widening gap between what is needed in the way of skilled mechanics and what is available. The automobile manufacturers have been working with this problem for the past four years through the Automotive Industry-Vocational Education Conference Group. Much good has resulted from this group's efforts to raise the standards of auto mechanics training, but no real progress will be made until car dealers and other employers of mechanics really get behind the program. Until then, it will be necessary to operate with mechanics of less skill.

(Continued on page 188)



"You could have knocked me over with a feather."



**MORE PROFIT  
2 WAYS!**



**LION**

**Nōkōrōde**

**UNDER-CAR SEALER AND SILENCER**

**1 Lion Nokorode Does 50% More Cars Per Drum!**

Lion Nokorode Under-Car Sealer and Silencer is *concentrated*. You spray Nokorode to  $\frac{1}{16}$ " thickness—and it dries to almost  $\frac{1}{16}$ " thickness... there's no wasteful excess solvent.

Result: You can coat twice as many cars with the same amount of Nokorode as you'd do with ordinary undercoatings. Yet Nokorode costs no more. Drum for drum, that means—

**... You Make 50% More Profit!**

**2 Lion Nokorode Goes On Smoother, Faster — Saves Labor Costs!**

Unlike other undercoatings, Lion Nokorode is produced entirely, from raw materials to finished product, by a *single company*, Lion Oil—under U. S. Patent 2,393,774. That assures *controlled* uniformity, *controlled* quality... a better undercoating.

Nokorode is *uniform*, for smooth application—it can't come out in troublesome

"blobs." It's *free-flowing*, permitting steady pressure in the gun—no lost time due to lost pressure.

And it's *stable*, made of highly compatible materials—won't separate out in storage, won't clog guns or hoses causing expensive clean-up jobs. Compared with inferior undercoatings, Nokorode saves you plenty of man-hours—

**... Giving You Even More Profit!**

**You're "In the Black" with**

**LION Nōkōrōde**

Naturally black—  
no useless  
coloring added.

Made and Guaranteed by



**LION OIL COMPANY**  
El Dorado, Arkansas

**FREE! How to Make More Money with Undercoating!**

Lion Oil Company, El Dorado, Arkansas

Please send me complete details on how I can increase my undercoating profits with Lion Nokorode Under-Car Sealer and Silencer.

Name \_\_\_\_\_ Street or Route \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Brand of undercoating I am now using, if any \_\_\_\_\_



This reduced skill will have to be offset in some way in order to produce the quality of workmanship that service customers seek. Few of them complain about *how* the job was done. The principal complaint concerns *what* job was done. Low skill mechanics can generally do most jobs that are listed in the shop manuals, providing someone

tells them exactly what needs to be done. This is because there have been so many excellent tools and such fine equipment developed that they actually can replace much of the skill formerly needed.

To determine *what* the vehicle needs is more than ever the job of a skilled mechanic or technician. At least one such man is needed by

every service department. He should be supplied with the necessary testing equipment to make possible an intelligent diagnosis of the trouble reported by the owner. Only in this manner can an owner be assured that he is buying what his car needs and only what it needs. Only in this manner can a repair order be written that directs the mechanic to do specific operations.

Surveys repeatedly reveal that customers often must return a second and third time to get repairs done properly. If this is true, there is not only a dissatisfied customer, but a car that is tying up valuable space and using a mechanic's time that might otherwise be sold.

Good tools and equipment are an important factor in retaining employees, as well as substituting for skilled workmanship and determining a vehicle's needs. However, there is still another major reason for investing in modern tools and equipment.

Employers who find themselves short of mechanics can often overcome this shortage by employing labor saving equipment. If, through the use of additional equipment a man can turn out 25 per cent more work, it is the same as having one additional man for every four now employed. This is no exaggeration, in fact, it can be accomplished quite simply. Take one tool, for example, the impact wrench. It is easy to see how it can speed up many jobs by 25 per cent. Making such tools available to the mechanic in addition to efficient, fast acting lifts and hoists will make it possible to turn out more work with the same staff, or the same volume with a smaller staff.

The opportunity to make the service department pay off exists now more than ever before in the history of the industry. The tremendous volume of cars sold in 1950 will be of an age that will require more than routine maintenance. Although there will be some shortages, replacement parts in general will be available. Alert management policies can overcome the space limitations and skilled manpower shortage. For those who are sincerely interested, 1952 WILL BE A BIG YEAR FOR AUTOMOTIVE SERVICE.

## **new OTC HYDRAULIC SLEEVE PULLER & INSTALLER** FOR TRUCKS • TRACTORS • POWER UNITS

*pull or install cylinder sleeves with the OTC POWER-TWIN in minutes instead of hours . . .*

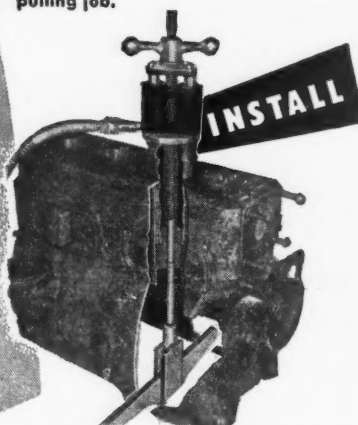
### "POWER-TWIN PAYS FOR ITSELF IN ONE DAY'S OPERATION."

These are the actual words of a shop owner the first time the Power-Twin Hydraulic Sleeve Set was used in his shop. You too will be amazed at the ease and speed with which this new OTC tool removes and installs wet or dry cylinder sleeves. What used to be a "Tough Job" now becomes simple with the sensational OTC Hydraulic Sleeve Set.

- Converts all OTC Sleeve Pullers to hydraulic power by the addition of only a few parts.
- Removes and installs either wet or dry 3" to 6" sleeves faster, easier.
- Operates on over 200 makes and models of trucks, tractors, busses and power units.
- Fully adjustable to provide clearance regardless of position of cylinder head studs . . .
- Centers accurately over bore.



Removing either wet or dry sleeves is simple with the new OTC Hydraulic Puller. Above is typical sleeve pulling job.



Dry cylinder sleeves replaced quickly and easily without damage or distortion with the new OTC Sleeve Installing Set.

**OWATONNA TOOL COMPANY**  
321 CEDAR STREET • OWATONNA, MINNESOTA

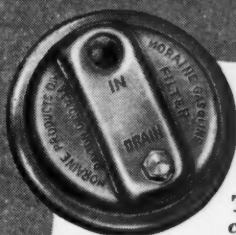




*...and consider this...*

## **SELL Delco Brake Fluid**

Sell Delco brake fluids and blanket your entire market with just two quality fluids . . . Delco Super 9—stable from 300° F. to -50° F. . . . Delco Super 11—stable from 325° F. to -60° F. Many modern cars specify Delco Super 11 for its extra safety factor. Delco brake fluids sell easily because they're good . . . they're good because they exceed S.A.E. standards. Order Delco brake fluids in convenient containers—from 8-ounce bottles to 54-gallon drums.

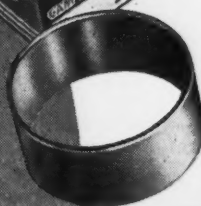


## **Another FAST Seller... MORaine All-Metal Gasoline Filters**

They sell fast because they give complete protection to carburetors—from harmful dirt, water, lint and scale. Priced to sell, easy to install, simple to service. Order from your United Motors distributor.



**A UNITED MOTORS LINE**  
Available Everywhere Through  
**UNITED MOTORS DISTRIBUTORS**



## **Every Second Car a PROSPECT for MORaine Engine Bearings**

because they're original equipment on GM cars and trucks, and many other makes. They're accurate—produced to original-equipment tolerances, durable, and pre-sold to this vast market waiting to be tapped by you. Available from your United Motors distributor.

# **MORaine PRODUCTS**

DIVISION OF GENERAL MOTORS CORPORATION • DAYTON, OHIO



# SERVICE WINNERS

for '52

CHAMP-ITEMS

Champ-Items Automotive Replacement Parts are designed to help you give Faster—Better—Safer Service. There's more than 200 Service Winners in the Champ-Items line.

Write for your copy of supplement of new Items for '52 to Champ-Items Catalog No. 500-R.

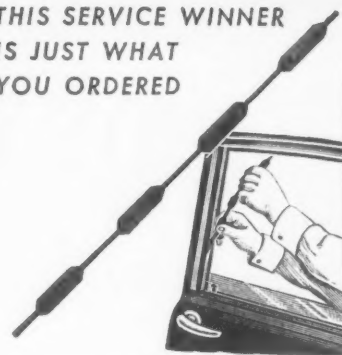
**CHAMP-ITEMS, INC.**

6191 Maple Ave.

St. Louis 14, Mo.



THIS SERVICE WINNER IS JUST WHAT YOU ORDERED



U. S. Pat. No. 2,504,510

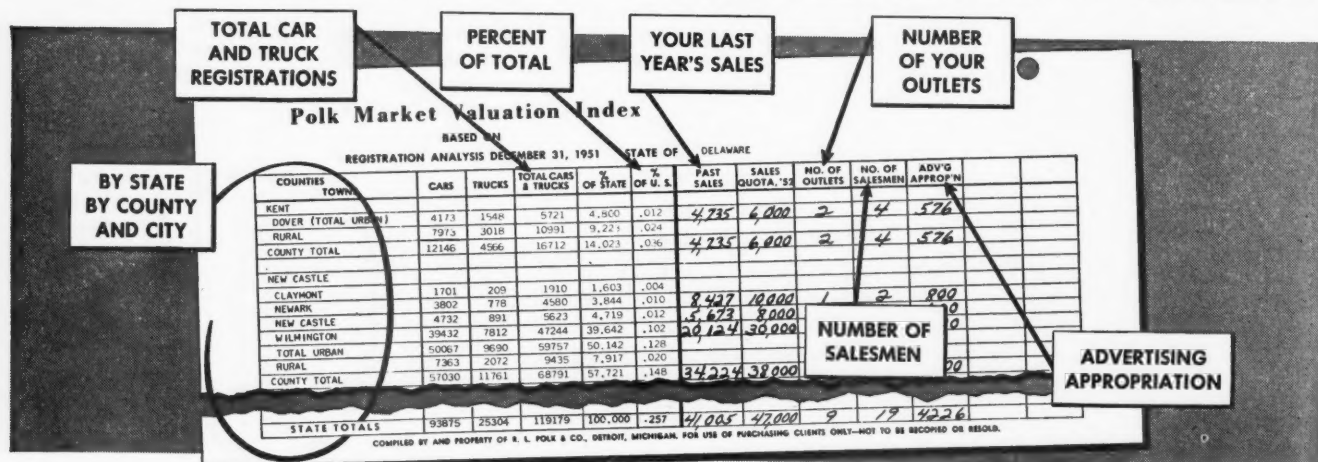
## No. 488 WINDOW CHANNEL SHIM for all Cars and Trucks

Easy to install—a permanent repair—weatherstrips against rain—insulates against cold.

Eliminates the rattle of windows due to excessive wear of original channel felt causing glass to contact metal. Is installed between edge of glass and old channel through the entire length of window. List \$1.00 each.

**NEW... for '52**

# POLK MARKET VALUATION INDEX



Here is the most important automotive sales tool developed in years! Detailed car and truck registration counts for every state, county and city, as of December 31, 1951—provided on forms that permit writing in your own sales information to compare with actual performance figures.

Measure last year's sales against total registrations for every

sales area in the country . . . set quotas . . . determine sales potentials . . . establish advertising appropriations . . . or enter any other information you need to pinpoint your sales attack. Chart your entire sales picture in one book.

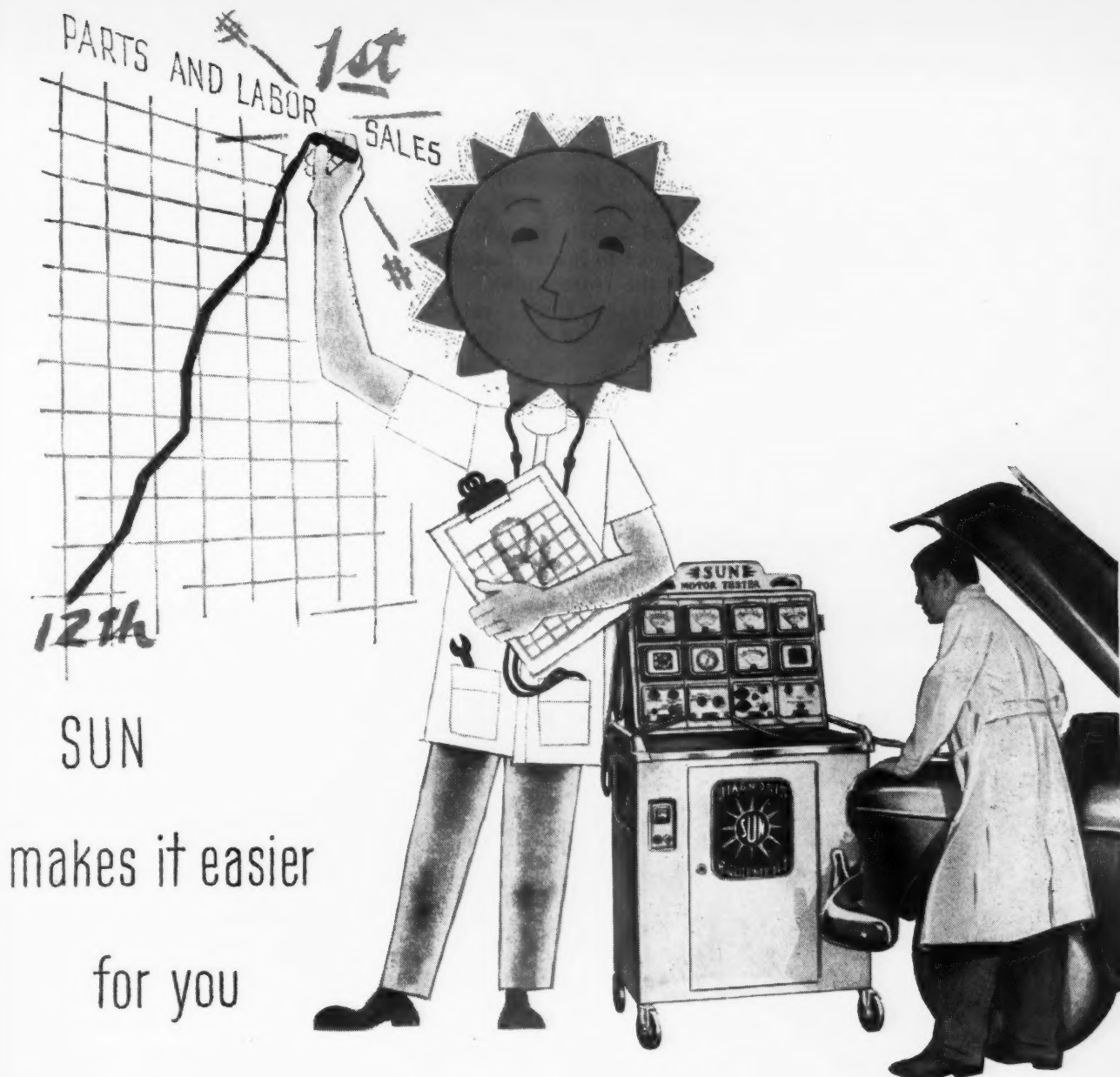
Let us tell you how this important new service can be applied to your sales!

\*\*\*\*\* Serving the Automotive Industry and its Dealers Since 1923 \*\*\*\*\*

**R. L. POLK & CO.** MOTOR STATISTICAL DIVISION  
431 Howard Street - Detroit 31, Michigan

BRANCHES: New York Philadelphia Cleveland Chicago St. Louis Cincinnati



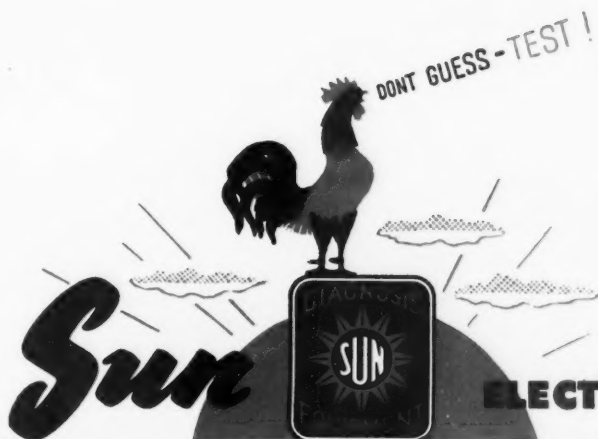


**... to increase parts and labor sales**

From twelfth place to first place in sales and service among sixty-one dealers in his region! That's the report of a car dealer who recently installed a sun Scientific Diagnosis Department. This dealer showed 58% increase in parts and labor sales. Similar reports are received daily from car dealers and independent repair shop owners all over the nation.

One out of every three cars coming into your shop needs work which can best be detected by Scientific Diagnosis. This is the proven way to increase parts and labor sales.

Tell us the number of cars you service per month. We'll tell you how shops your size are increasing their business with sun Diagnosis Equipment. Write TODAY—there is no obligation.



R-5780R

Chilton's MOTOR AGE, JANUARY, 1952

**SUN ELECTRIC CORPORATION** 6353 AVONDALE AVE.  
CHICAGO 31, ILLINOIS



## Pontiac Hydra-Matic . . . Continued from Page 63

from the T-valve will open the 3-2 detent plug, thus moving the 2-3 shift valve to closed position.

When the 3-2 detent plug is open, regulated throttle valve pressure to the 2-3 shifter valve is shut off. At the same time main line pressure from the T-valve flows past the large end of the 3-2 detent plug to close off the 3-2

timing valve. Regulated throttle pressure then flows into a passage uncovered by the small end of the 3-2 detent plug and delivers oil to the 1-2 shift valve through a larger port to insure fast application of the front clutch.

While the 3-2 timing valve is closed, oil released from the rear servo and exhausting through the

2-3 shift valve is forced to flow through a small hole past the timing valve. This results in a slow application of the rear band. Since the front clutch is applied quickly while the rear band is applied slowly, the transmission will shift smoothly into second speed.

The front servo too has been redesigned to provide greater holding force to the front band under closed throttle conditions. Although this is effective under all conditions with the front band applied, the primary purpose is to assure adequate holding force with the transmission operating as a brake in third gear.

To this end the front servo is arranged to utilize the front servo apply piston and includes an overrun control. In first, third, and reverse, the overrun control valve directs front servo apply oil behind the larger diameter apply piston.

In second or fourth gear, oil to the front clutch piston also is directed to the end of the overrun control valve, thus forcing it back against the spring. Here the valve cuts off oil supply to the servo apply piston and permits the oil trapped behind the piston to be exhausted so the front servo release oil can move the piston to released position.

The rear servo is redesigned to allow faster rear band application in "Lo" range. This improves rocking control by speeding "Lo" and "R" engagement by supplying "Lo" range oil from the manual valve to a new rear servo exhaust valve, allowing rapid exhaust of rear servo release oil. When "Lo" range oil is not applied to the exhaust valve, a spring holds it closed.

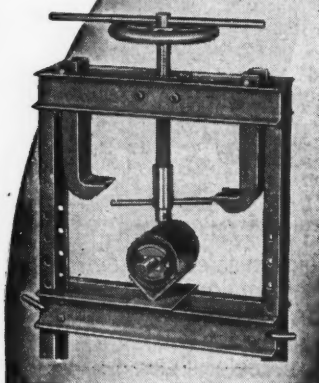
### Seattle Dealers Plan Auto Show for Spring

Seattle, Wash., auto dealers aren't taking the current soft market lying down. While generally increasing sales efforts they are also looking ahead to capitalizing on the usual upturn in spring buying by laying plans now for an Auto Show in the Field Artillery Armory, March 29 through April 6, 1952.

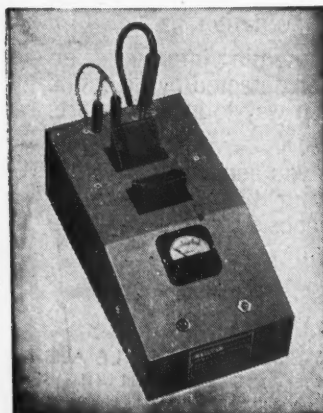
Chilton's MOTOR AGE, JANUARY, 1952

## THIS TRUCUT PACKAGE REALLY PUTS YOU IN BUSINESS!

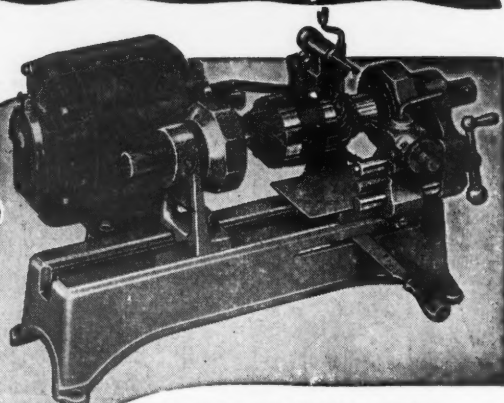
GET EXTRA PROFITS  
from  
Starter-Generator  
Work!



TRUCUT SHOP PRESS



TRUCUT ARMATURE TESTER



TRUCUT ARMATURE LATHE  
AND UNDERCUTTER

There's plenty of extra profit in starter-generator work . . . If your shop is equipped to handle it!

And you can handle it with these three TRUCUT tools . . . all tried and tested . . . all designed especially for automotive repair jobs! With them, you can machine and undercut commutators perfectly; test for shorts, open circuits, and grounds; make quick, easy work of dismantling and assembling generators. The TRUCUT Press is also useful on dozens of other jobs around your shop.

This TRUCUT package actually pays for itself in an amazingly short time. Enables you to handle work you are now sending out . . . or helps you to do it more quickly and profitably! Write for free details and catalog M1, today.

**FRANK N. WOOD CO.**  
... SINCE 1933

**TRUCUT**

344 W. Main Street • Waukesha, Wisconsin  
Pacific Coast Address  
1330 W. Olympic Blvd., Los Angeles 15, Calif.



*first* in the world . . . . . *first* the world over . . . . .

as simple as its

starting steps :

1

turn on switch

2

open fuel valve

3

turn on solution  
valve



Hypressure **Jenny** Steam Cleaner

**ten times faster** than any other cleaning method

Simple to start as 1, 2, 3 . . . as *simple* to use as a garden hose . . . Hypressure Jenny—the world's first and leading steam cleaner—is ready to go to work on any type of cleaning job in only 90 seconds from a stone-cold start. With automatic electric-spark ignition, there is no long warm-up period . . . no vexing adjustments. Just start and clean, anytime, anywhere —10 times faster, and better than you can do it by hand. After starting, Hypressure Jenny can be controlled—turned on or off—right at the point of cleaning . . . 100 feet from the unit if necessary.

Garages, repair shops, service stations, car dealers, fleet

operators, everywhere, prefer Hypressure Jenny above any other steam cleaner, not alone for the time, labor and money it saves them or for the many new, customer services it performs but because Jenny is the *simplest*, most effective steam cleaner in the world.

Send for free illustrated booklet. You'll be glad you did.

There is a Hypressure Jenny Steam Cleaner for every Mine . . . Mill . . . Factory . . . Farm and Automotive need; and every one is backed by a nation-wide, factory-trained service organization—the only one in the steam cleaner field.

HYPRESSURE JENNY DIVISION

HOMESTEAD VALVE MANUFACTURING COMPANY

*Serving since 1892*

P. O. Box 95

CORAOPOLIS, PA.



# ACME FLEXRITE

## Radiator Hose Curves to Fit!

Service stations, garages, new car dealers, from coast to coast, are literally "snapping up" the profitable radiator hose replacement business that FLEXRITE offers!

FLEXRITE pre-cut lengths are quickly and easily installed on any car in a matter of minutes. Even in those hard-to-reach connections FLEXRITE curves so easily that it makes any installation a "cinch"!

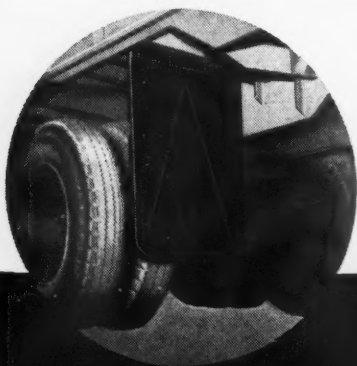
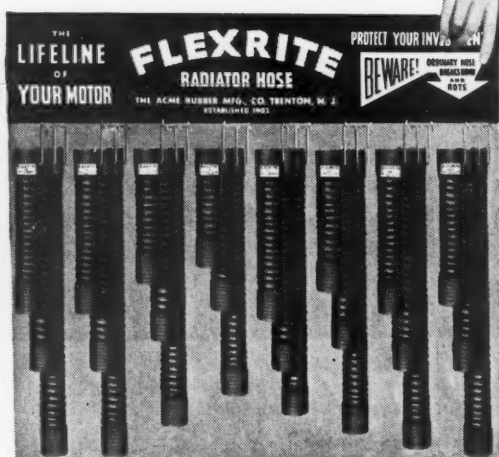
Here is America's finest radiator hose. Its acceptance is without equal in the trade. FLEXRITE is reinforced with spring steel wire imbedded in rubber; it flexes with the vibration of the motor; it won't bend or crack.

*First in Flexible Radiator Hose!*

### Flexrite Hose Assortments

**THINK OF IT!** You can get started in this profitable replacement business with a FLEXRITE MERCHANTISER assortment that gives you 85% market coverage with 12 hose in 8 different sizes, for only \$11.11 incl. new Fed. Excise Tax. (FH-51)

97% market coverage with 24 hose in 15 different sizes for only \$23.15 incl. new Fed. Excise Tax. Metal Display Racks, etc. Free! (FH-150)



### ORDER ACME SPLASH GUARDS NOW!

Here is America's finest, most rugged Truck Splash Guard, the leader in the field. Splash guards are now compulsory in most states and ACME guards meet all states' requirements. Immediate Delivery!

**DISTRIBUTORS! DEALERS!** Write today for circular M describing the profit opportunities on Acme Flexrite Radiator Hose and Acme Splash Guards! For information on Air Intake and Defroster Hose and the complete Acme line of automotive products, ask for catalog M-1.



Factories & Main Office  
Trenton 6, New Jersey  
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## **CF** Clutch Plates



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Look to your PERFECTION jobber for your clutch plate requirements. You can turn chatter and grief into praise and profits by standardizing on PERFECTION "CF" Clutch Plates.

These quality replacement clutch plates have patented formed and riveted cushioned springs designed to eliminate chatter and grab.

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PERFECTION PRODUCTS INCLUDE: Silent Timing Gears, Metal Timing Gears, Silent Timing Chains, Sprocket Gears, Transmission Gears and Parts, Differential Ring Gears and Pinions, Differential Cases and Parts, Fly Wheel Gears, Clutch Plates, Pressure Plates, Clutch Cover Assembly Parts, Clutch Forks and Parts, Clutch Throwout Bearings, Clutch Rebuilders.





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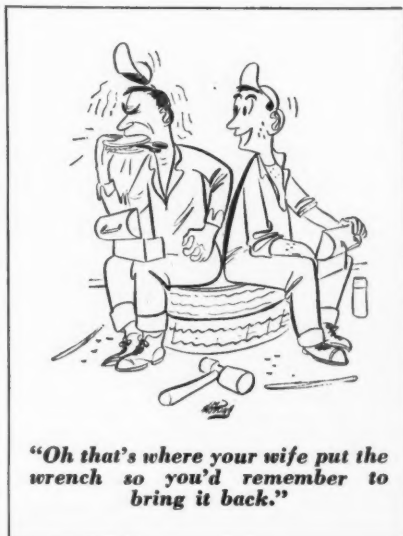
FIRM.....

ADDRESS.....CITY.....

## It Happened . . . .

Continued from Page 64

- 1933—Ventilation by pivoted window sections (Fisher Body).  
Anodized aluminum-alloy pistons (Lincoln).  
Semi-automatic transmission (Reo).  
All-helical-gear transmission (Chrysler).
- 1934—Independent front suspension (GM and Chrysler).  
Automatic overdrive (Warner Gear, on Chrysler).  
Engine mounted over front suspension (Chrysler).  
Cast crankshaft (Ford).
- 1935—Steel roofs on automobile bodies (General Motors).  
Unit construction of chassis and body (Lincoln-Zephyr).  
Hydraulic hillholder (Studebaker).
- 1936—10-mm spark plugs (Packard).
- 1937—Transmission with automatic shift (Oldsmobile).
- 1938—Steering-column-mounted gear-shift lever reintroduced (Pontiac).  
Disk-type clutch spring with variable rate (General Motors).
- 1939—Fluid coupling (Chrysler).  
Automatic transmission (Hydra-Matic, on Oldsmobile).
- 1940—Sealed Beam headlamps.
- 1941—Four-speed, semi-automatic transmission and hydraulic coupling (Chrysler).
- 1942—Integral rear fender and body (Packard).
- 1946—Self adjusting brakes (Studebaker).
- 1948—Hydraulic torque converter type transmission (Buick).  
Automatic spark advance, 100 per cent vacuum controlled (Ford).
- 1949—Disk brakes (Crosley).
- 1950—Valve rotator (Crosley).
- 1951—Power operated steering (Gemmer) use on Chrysler.



**Brake Block and Seg-Mold**

For Top Quality and Extra Profits!

**A complete line for every requirement**



**NATIONAL BRAKE BLOCK**  
(Semi-cured wire-back) For quick-acting braking with less pressure. Available boxed, in bulk and in 25 ft. rolls. For riveting and bonding.

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(Fully cured Segments) Boxed Sets . . . Greater heat resistance under tough braking conditions. For riveting and bonding.

**NATIONAL SF Heavy Duty Clutch Facings**

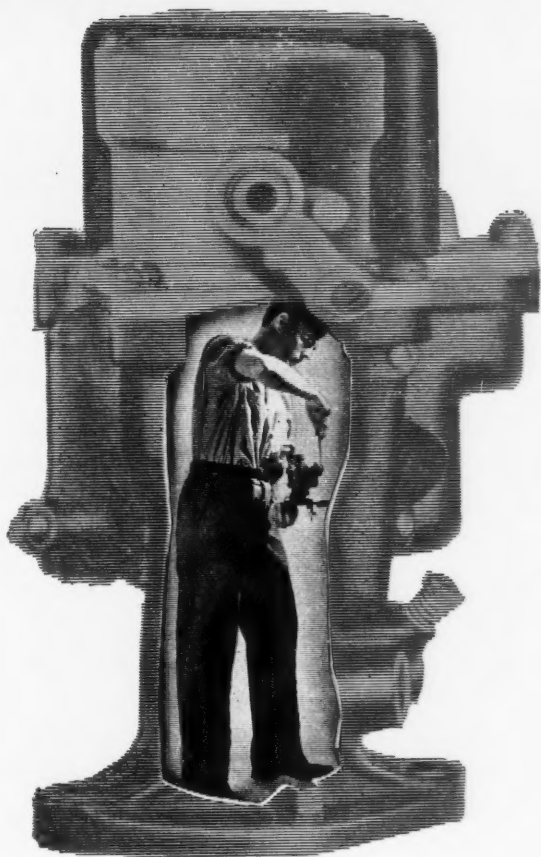
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A complete sales promotion program in your locality builds you up as "the shop that knows carburetors inside out".

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**These Hygrade-System Shops say:**

*"... it pays to know carburetors inside-out"*



"Saves us as much as 30 minutes on a carburetor job" report the McDermotts of College Point, N. Y.



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"Helps us get more carburetor repair jobs with less effort" reports E. C. LaDou, from San Diego, California



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*by the makers of Blue Streak Ignition Products*



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wheels.

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wheels.

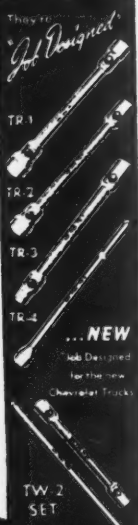
TR-3 "Job Designed" for  
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and Mack wheels.

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socket for GMC, Geo and  
Federal wheels.

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MAKES MOLDED  
BRAKE LINING  
IN THE SOUTH

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## Calendar of Coming Events

Jan. 14-18—Society of Automotive Engineers, annual meeting, Book-Cadillac Hotel, Detroit.

Jan. 22-24—Annual meeting, National Car Rental System, Inc., Delano Hotel, Miami Beach.

Jan. 25—Automotive Trade Assn., Managers meeting, Waldorf-Astoria, New York City.

Jan. 27-30 — NADA Convention, Waldorf-Astoria Hotel, New York.

Feb. 16-24—44th Annual Chicago Auto Show, International Amphitheater, Chicago, Ill.

Feb. 22-Mar. 1—Washington Automotive Trade Assn., National Guard Armory, Washington, D. C.

Feb. 28-Mar. 2—Pacific Automotive Show, Pan Pacific Auditorium, Los Angeles.

Mar. 3-8—40th Automobile Show, Coliseum, Denver. Sponsored by the Denver Automobile Dealers Assn.

Mar. 7-16—Los Angeles Motor Car Dealers Assn., Pan Pacific Auditorium, Los Angeles.

Mar. 8-15—Kansas City Auto Show, sponsored by Motor Car Dealers Assn., of Greater Kansas City, Municipal Auditorium, Kansas City.

Mar. 8-15—Pittsburgh Automobile Dealers Assn., Hunt Armory, East End, Pittsburgh.

Mar. 10-11—Annual convention of Louisiana Automobile Dealers Assn., Hotel Jung, New Orleans.

Mar. 14-24—Portland Auto Dealers Motor Show, Portland, Oregon.

Mar. 20-23—10th Annual Southwest Automotive Show, Sam Houston Coliseum, Houston, Texas.

Mar. 22-Apr. 6—2nd Chicago International Trade Fair, Navy Pier, Chicago.

Mar. 29-Apr. 6—Seattle Auto Show sponsored by Seattle Automobile Dealers Assn., Field Artillery Armory, Seattle.

Apr. 7-8—13th Annual Convention Missouri Automobile Dealers Assn., Muehlebach Hotel, Kansas City.

May 5-7—Automotive Engine Builders Assn., San Antonio, Texas.

Oct. 19-21 — Florida Automobile Dealers Assn., Sans Souci Hotel, Miami Beach, Fla.

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(Write for illustrated bulletin MA-315)

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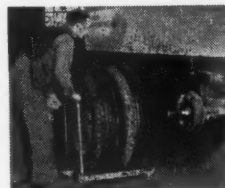


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WOLF'S HEAD  
IS 3 STEPS AHEAD

## WOLF'S HEAD

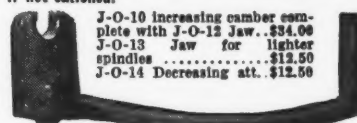
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"Measurably Better"  
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SAVE TIME AND TEMPER WITH . . .

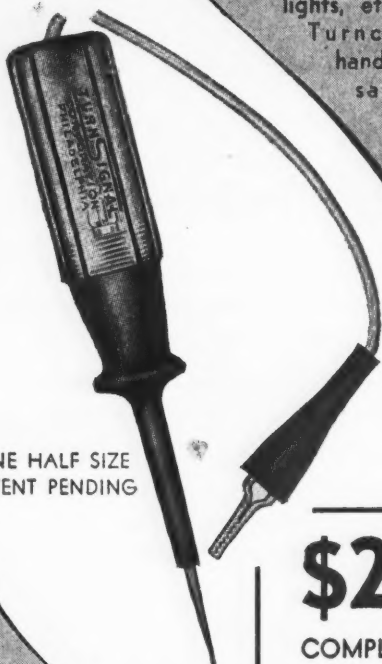
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**RUSTED**  
and  
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Threads

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Now — no more drilling or hack sawing to replace damaged male threads! Buckingham Thread Restorer eliminates flats and nicks — cleans heavily rusted and corroded threads on studs, bolts, pipes, threaded shafts.

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**30,000  
Volts**

When insulators pass this rigid test (30,000 volts at 1.5 megacycles) for dielectric strength, they are ready for the toughest ignition jobs.



**What a jolt  
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***to assure you Top Spark Plug Performance***

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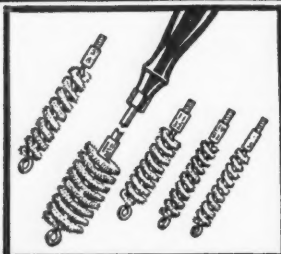
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# A complete stock of LONG LIFE WIRE BRUSHES from **RIMAC**

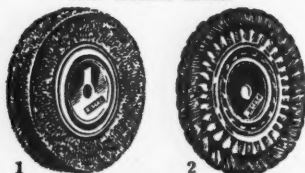


- No. B-29** Distributor Head Brush. Quickly cleans and dresses distributor head sockets.
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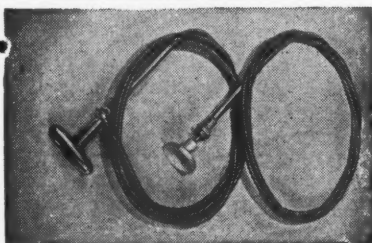
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for practically all makes of cars. Quality products with exclusive engineering features and trouble-free service. Easy to install. Easy to sell. Contact your local jobber or write for full information.

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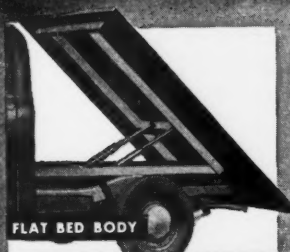
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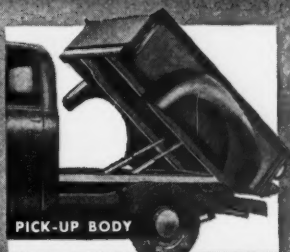


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- IN PROFITS



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with stainless steel bands

Worm Drive  
Never Works  
Loose



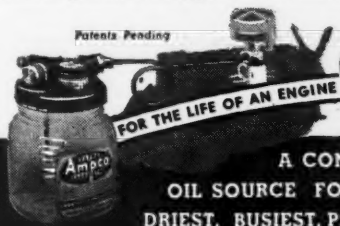
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LUBRICATOR

FOR THE LIFE OF AN ENGINE

A CONSTANT  
OIL SOURCE FOR THE HOTTEST,  
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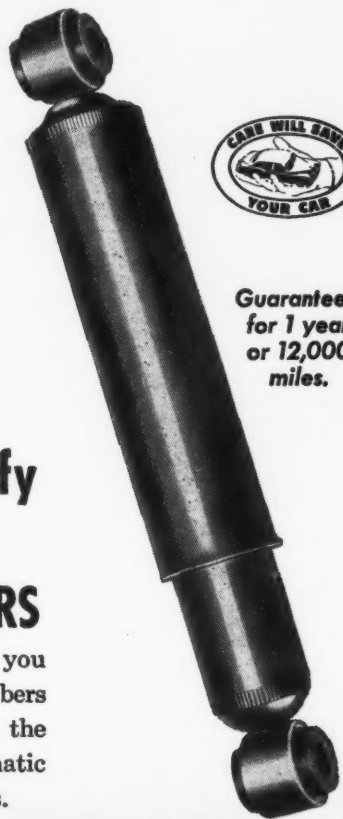
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